MS/HSD SALES THROUGH RETAIL IN THE NORTHERN REGION

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I. INTRODUCTION

1.1 Rationale

Motor-spirit (MS) and high-speed-diesel (HSD) are two major petroleum products, whose sales/consumption in India has increased substantially during the past two decades. Table 1.1 presents the sales/consumption of MS and HSD in the country in 1970/71, 1980/81 and 1987/88.

Table 1.1 shows that the combined share of sales/consumption of MS and HSD increased from less than 30% in 1970/71 to about 37% in 1980/81 and further on to about 44% in 1988/89. Moreover, the growth rate of HSD sales/consumption also increased from 6.7% per annum during the 1970s to 12.3% per annum from 1980/81 to 1988/89. The sales/consumption of MS also increased at the rate of 9.1% per annum during the 1980s, from 1980/81 to 1988/89.

These data indicate the rising importance of both MS and HSD in the Indian economy. Such trends are likely to continue, unless factors which underly them are understood, and necessary steps are taken to curtail their increasing demand.

1.2 Objective

Against this background, it becomes necessary and relevant to study the factors which influence the demand for MS and HSD.

This study focuses on the country's Northern Region, which comprises the six states of Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan and Uttar Pradesh, as well as the union territories of (UTs) Chandigarh and Delhi/New Delhi.

The relative influence of the principal determinants of the demand for MS and HSD are studied and mathematical relationships and models (which can be used for projecting MS and HSD demand) are developed for the following major MS and HSD consuming sectors and sub-sectors:

(i) MS: fuel efficient and fuel non-efficient vehicles (2-wheelers, three-wheelers, cars, jeeps);

(ii) HSD: trucks, buses and other vehicles in the road transport sector;

(iii) HSD: tractors and diesel pumpsets in the agricultural sectors; and

(iv) HSD: standby/captive power generation in industrial and commercial establishments.

MS and HSD demand forecasts are made for the Eighth, Ninth and Tenth Five Year Plan (FYP) periods. For the Eighth FYP period (1990/91 to 1994/95), the projections are made for each state/UT in the Northern Region; while for the Ninth and Tenth FYP periods, the projections are for the Northern Region as a whole for industrial and commercial establishments, and at the state/U level for road transport and agricultural consumers. The deman projections are confined to sales though retail outlets (ROs only.

1.3 Scope

The study comprises two major activities :

(i) to conduct a representative sample field survey by interviewing various categories of MS/HSD consumers who visit selected retail outlets in selected districts; and

(ii) to project the demand for MS and HSD for various sectors and categories of consumers under different scenario assumptions.

1.3.1 Field Survey

The sample field survey is conducted to collect basic data on various types of MS and HSD consuming machinery, equipment and vehicles that are in use in various sectors. It may be noted that little more than the data on population of the various equipments/vehicles and their fuel consumption norms (as per manufacturers' specifications or/and under test conditions) are available. Little is known about their annual or seasonal utilization patterns, the variation between actual MS/HSD consumption patterns and the manufacturers' claims, and the annual fuel consumption and variations from month to month. It is for gathering such data that the field survey is conducted. The type of vehicles/equipment for which field level-data are collected through the field survey are given in Table 1.2.

With the findings of field survey, it also becomes possible to estimate the relative fuel consumption levels in various sectors. The case in point is that of HSD; for which the total sales from ROs are known, but the sectoral break-up of sales to road transportation, agricultural and industrial/commercial users is not.

The survey also helps us to estimate the share of MS/HSD consumption by different types of vehicles and for different end-uses even in the same sector. For instance, the total sales of MS in the road transport sector are known from readily available data from the oil industry; but the split between MS consumption in cars, jeeps, two-wheelers, three-wheelers etc. is not, and can be estimated only from the survey. Likewise, not only estimates of total HSD usage in agricultural consumption can be obtained from the survey, but also the split in HSD usage between diesel pumpsets and tractors; and further, between tractor usage for land preparation and transportation.

1.3.2 Fuel Sales Forecast

Owing to the uncertainties which are associated with several factors that influence the consumption of MS and HSD, our endeavour here is not to derive just one set of projections of MS and HSD sales, but a variety of scenarios.

These scenarios would relate to different assumptions regarding economic growth patterns in the country, and concomittant policy initiatives and policy interventions. For instance, the MS and HSD sales forecasts should be able to gauge the impacts of a Government initiative to step-up investment in the railways sector -- which may have an impact on at least freight movement by road.

The information collected from the field survey will be used in conjunction with other data which will be collected from the oil industry and other sources* to make forecasts.

It is hoped that the sample survey and supporting information collected from various sources will give adequate insight in to the factors which influence the use of MS and HSD in various sectors. One important item here relates to the power supply situation. It is known that unreliability of power supplies has an impact on the HSD use in the commercial and industrial establishments -- which install diesel generators and run them to generate electricity. Similarly, technology improvements which can lead to an increase in fuel use efficiency, and hence a reduction in MS and HSD consumption will also be considered.

The MS and HSD sales projections scenarios will therefore provide useful policy guidelines regarding certain economic and social issues.

1.4 Report Layout

Chapter II presents the methodology for selecting the sample ROs for the field survey, and the overall approach for forecasting MS and HSD sales. Findings from the field survey on passenger and freight transport sectors are presented in Chapter III. Likewise, the findings of the field survey regarding HSD sales to agricultural and industrial/commercial consumers are presented in Chapters IV and V respectively.

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* Such as the Electric Power Utilities of various states/UTs in the Northern Region, the Central Road Research Institute, Indian Agricultural Research Institute etc.

Forecasts for MS sales through ROs to road transport consumers are given in Chapter VI, along with the details of the forecasting methodology. The findings from the field survey regarding MS sales and consumption patterns are also validated in Chapter VI.

The field survey findings regarding HSD sales and consumption patterns of various sectors are validated in Chapter VII. Chapters VIII, IX and X give the forecasts of HSD sales to road transport, agriculture and industrial/commercial consumers respectively. Finally, Chapter XI gives the summary and basic conclusions of the study.

Table 1.1 : Sales/Consumption of Petroleum Products (All India)

	1970/71	1980/81	1988/89*
Total petroleum products ('000 tonnes)	17912	24123	49760
of which :			
- MS	1453	1519	3045
- HSD	3837	7371	18704
% of :			
- MS	8.1	6.3	6.1
- HSD	21.4	30.6	37.6
- MS & HSD	29.5	36.9	43.7

* Provisional.

Source : Department of Petroleum and Natural Gas, Annual Petroleum and Natural Gas Statistics, 1988/89, Govt. of India, New Delhi.

Table 1.2 : List of Vehicles and other MS/HSD Using Machinery Covered in the Field Survey

a. Road Transport Sector	
a.1 Passenger Transport	cars, taxis, jeeps, 2-wheelers, 3-wheelers; buses, mini-buses.
a.2 Freight Transport	trucks, LCVs, tempos, 3-wheelers, jeeps.
b. Agriculture Sector	tractors, diesel pumpsets.
c. Industrial/Commercial Sector	standby diesel generators.

II. METHODOLOGY

2.1 Introduction

As evident from Chapter I, the major steps in this study are:

(i) to select a representative sample of ROs for the field survey;
(ii) to conduct interviews of MS/HSD consumers who visit the selected ROs, and fill in pre-tested questionnaires;
(iii) to analyze the data obtained through the survey; and
(iv) to project the MS and HSD sales.

Item (ii) above gives the basic data obtained from the survey, and forms the basis of the analysis referred to in item (iii). These aspects are detailed in Chapter III.

In the subsequent sections of Chapter II, the methodology for sample selection of ROs is presented along with the overall approach for forecasting MS and HSD sales through ROs.

2.2 Sample Selection

The sample selection was based on the twin objectives of:

(i) covering all types of agroclimatic zones in the Northern Region, which are essentially plain, desert and hills;
(ii) taking into account all types of markets in the sample.

As it is already established that there is a definite link between HSD consumption for agricultural purposes in a particular place and its agroclimatic characteristics, it is essential cover all agroclimatic zones in the field survey. Moreover, this broad coverage will also include areas which have different levels of industrial and commercial activities, and different types of industries.

Another important aspect to be considered is the "class of market" as defined by the oil industry. This system of classification of ROs, as serving certain types of markets, is a reflection of the level and type of economic activity -- which in turn influences MS/HSD sales. According to this system of classification, ROs serve: (i) a class 'A' market if they are in a city/town with a population greater than one million; (ii) a class 'B' market if they are in a town with a population ranging from 2,00,000 to one million; (iii) a class 'C' market if they are in a town with upto 200,000 people; (iv) a class 'D' market if they are located on a national/state highway; and (v) a class 'E' market if they are in a rural and remote area which is at least 10 kilometres (km) off the national/state highways.

The states of Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh and the union territories of Chandigarh and Delhi comprise the Northern Region. The sample selection exercise however, is restricted to Delhi/New Delhi, Haryana, Rajasthan and Uttar Pradesh.* In these states also, the field survey is conducted in selected districts which adequately cover the three agroclimatic zones and the diversity of industrial and commercial activity in the Northern Region.

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* For sake of logistic convenience, the sample survey is not conducted in Chandigarh, Himachal Pradesh, Punjab and Jammu & Kashmir.

The first stage of sampling entails selection o representative districts from Haryana, Uttar Pradesh an Rajasthan. The six districts selected from these three states ar Ambala and Karnal (in Haryana), Mirzapur, Nainital and Varanas (in Uttar Pradesh) and Sri Ganganagar (in Rajasthan). Delhi/New Delhi, representing a typical metropolis, is also included in the sample. The criterion for selecting the aforementioned seven districts is that they should not only be representative of the prevailing situation in the respective states, but also serve as surrogates for the states in Northern India in which the survey is not conducted. For instance, the proximity of Haryana and Punjab and the similarities of their socia-economic situation would perhaps be a justification for approximating the consumption pattern of MS and HSD in Punjab, from the consumption pattern in Karnal and Ambala. And the sales/consumption pattern in Nainital will serve to estimate the same for Himachal Pradesh and Jammu and Kashmir.

To account for diversity in a big state like Uttar Pradesh, three districts are selected, namely Mirzapur, Varanasi and Nainital. Mirzapur and Varanasi represent Southern and Eastern UP, while Nainital typifies the Hilly zone. The Western part of UP may be considered to be similar to Haryana -- for which the findings of the survey in Ambala and Karnal may be used.

The second stage in the sample selection procedure involves stratified sampling of ROs in each of the six districts. The RO of all the four oil companies (BPC, HPC, IBP and IOC) in particular district are segregated on the basis of the type market they serve (A, B, C, D or E). From each of these five markets or stratas, ROs are selected on the basis of their sales of MS and HSD in 1988/89. It is ensured that ROs which cover the entire range of MS/HSD sales within the particular class of market are included in the survey. The number of ROs selected from a strata is dependent on the number in that strata in relation to the total in the particular district.

Delhi is an atypical case as the entire city is an 'A' class market. Hence, no strata are drawn. Five ROs in Delhi are selected for the survey.

Table 2.1 gives the number of ROs in the selected states and Delhi/New Delhi, as well as the number of ROs included in the sample. Table 2.2 gives the total number of ROs in selected districts serving a particular class of market, as well as those included in the sample. In addition to the ROs, there are several dealers/agents authorized by the respective state governments, who purchase fuel in bulk from ROs and sell it to final consumers. Sales pattern through these dealers/agents are also investigated to a certain extent as part of the survey, particularly in UP.*

The sample survey in each district is conducted over a period of two to four months. Investigators spend two to four days twice at each of the selected ROs to interview consumers who visit the ROs to purchase MS and HSD. The field survey in each district usually lasts about two months; and investigators therefore spend 2 to 4 days at each RO once every month or so.

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* It is found however, that these dealers/agents sell HSD primarily to agricultural and small industrial consumers.

Four basic types of questionnaires are designed, one each for road passenger transport vehicles, road freight transport vehicles, agricultural consumers, and industrial/commercial consumers. The questionnaires are detailed in Annexures II.1 through II.4.

The schedule of the field survey in 1990 is as follows :

(i) Delhi/New Delhi : April 1 through June 1.

(ii) Karnal and Ambala : April 15 through July 15; and October 15 to December 15.

(iii) Sri Ganganagar : May 15 through August 15.

(iv) Nainital : June 15 through September 15.

(v) Mirzapur and Varanasi : July 15 through November 30.

2.3 Validation of Survey Data

Before, the findings of the field survey can be used for forecasting purposes, it is necesary to check whether the survey data show a reasonable degree of conformity with other available information on total MS or HSD sales through retail in the particular state/UT, the population of vehicles and other HSD using equipment etc. This process of validation is conducted for MS and HSD separately.

MS is used largely for passenger transportation. However, some vehicles like MS-fuelled jeeps, taxis and three wheelers may also be used for transporting freight. Likewise, in addition to HSD use in the freight transport, agriculture and industrial/commerical sectors, it is used in passenger transport, as [illegible] jeeps, three-wheelers and buses/mini-buses also.

The use of MS is therefore confined only to road transport vehicles (largely passenger vehicles, but to some extent also freight), and the survey findings regarding MS sales may be validated only by considering simultaneously, the data for two-wheelers, three-wheelers, cars, jeeps and taxis. On the other hand, for validating the survey findings regarding HSD sales through ROs, it becomes necessary to consider the contributions of all four sectors (road passenger transport, road freight transport, agriculture and industry/commerce) simultaneously. It is clearly evident then, that the HSD sales validation exercise is much more complicated than validating MS sales.

The survey findings regarding MS consumers are validated in Chapter VI; and regarding HSD consumers in Chapter VII.

2.4 Forecasting

For forecasting purposes, socio-economic similarities between states or parts of a state are considered. For instance, for forecasting MS sales through ROs, some of the findings of the field survey in Haryana (Ambala and Karnal) are considered for Punjab and Western UP. Similarly, the findings of the field survey from Nainital district in UP are considered for Himachal Pradesh and Jammu & Kashmir; and from Delhi/New Delhi are considered for Chandigarh. Table 2.3 lists the particular states/UTs for which the survey findings from other states/UTs are taken. It may be noted that for the purposes of forecasting MS sales, the state of UP is divided into three parts : Hill, Western, and other. This is necessary in view of the fact that UP is a very large state with an area of 294,000 sq.km. and a population of 111 million (as per the 1981 census).*

The detailed methodology for forecasting MS sales by type of road transport vehicle, is presented in Chapter VI. Similarly, Chapter VIII presents the methodology for forecasting HSD sales by type of road transport vehicle which runs on HSD. Likewise, Chapters IX and X respectively present the methodology for forecasting by end-use, the HSD sales for agricultural and industrial/commercial consumers respectively.

For projecting MS and HSD sales for road transport vehicles, the basic approach is to rely on projections of manufacture, sales and registrations of various types of vehicles. The macro-economic approach of quantifying the future requirements for passenger and freight transport services is not adopted, because that will necessitate further assumptions regarding inter-modal split.

For making projections of HSD sales to agricultural consumers, the role of tractors both for agricultural operations and transportation purposes is considered separately. Projections of the population of tractors and diesel pumpsets in service plus land area under cultivation and irrigation, and the findings of the field survey regarding HSD consumption levels per tractor and pumpset are used for making forecasts.

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* UP accounts for 30% of the geographical area of the enitre Northern region state/UTs and 9% of that of India. As per the 1981 population census, UP accounts for over 5.7% of the population of all Northern Region States/UTs and over 16% of that of the entire country.

For industrial/commercial establishments, the projections of the power supply deficit along with growth of standby/captive diesel generating capacity form the basis for making HSD sales forecast.

Table 2.1: Number of ROs in Selected States, and the Number covered in the Sample Survey

	No. of Retail Outlets	No. of Retail Outlets Surveyed
Haryana	462	20
Rajasthan	799	10
Uttar Pradesh	1723	25
Delhi	232	5
	3216	60

Table 2.2: Number of ROs in Selected Districts -- Total Number and Sample Size

Selected District/UT	Total no. of ROs					No. of ROs Surveyed				
	A	B	C	D	E	A	B	C	D	E
Ambala	-	4	9	37	2	-	1	2	5	2
Karnal	-	-	13	28	4	-	-	3	5	2
Mirzapur1)	-	1	12	19	4	-	1	3	4	2
Varanasi2)	-	33	5	33	2	-	4	2	3	1
Nainital3)	-	2	28	46	2	-	1	2	2	-
Ganganagar2)	-	1	37	31	8	-	1	4	3	2
Delhi	232	-	-	-	-	5	-	-	-	-

Note : The erstwhile district of Mirzapur includes the two new districts of Mirzapur and Sohanbhadra. The total number of ROs shown above, and ROs included in the survey sample, are from both the two new districts.

1) Class of Market served by one RO not available.
2) Class of Market served by two ROs not available.
3) Class of Market served by eight ROs not available.

Table 2.3 : Exptrapolation of the Findings of the Field Survey to the Entire Northern Region

State/Part of State/UT	Relevant District in which field survey is conducted
Haryana (HAR)	Ambala, Karnal
Himachal Pradesh (HP)	Nainital
Jammu & Kashmir (JK)	Nainital
Punjab (PUN)	Ambala, Karnal
Rajasthan (RAJ)	Ganganagar
Hill Districts of UP (UP/Hill)a)	Nainital
Western parts of UP (UP/West)b)	Ambala, Karnal
Other parts of UP (UP/Other)c)	Mirzapur, Varanasi
Chandigarh (CHD)	Delhi/New Delhi
Delhi/New Delhi (DEL)	Delhi/New Delhi

a) Includes the seven hill districts of UP -- Almora, Chamoli, Nainital, Pilibhit, Pithoragarh, Tehri Garwal and Uttarkashi.
b) Includes the following eleven districts of UP -- Agra, Aligarh, Bijnor, Dehradun, Mathura, Meerut, Moradabad, Muzzafarnagar, Bulandshahr, Ghaziabad and Saharanpur.
c) Includes all other districts in UP.

III. PASSENGER AND FREIGHT TRANSPORT

3.1 Introduction

The findings of the field survey on MS and HSD sales to road passenger and freight transport consumers are presented in subsequent sections. Detailed results are given in Annexures III.1 through III.51. In addition to data on fuel consumption pattern and related issues like fuel intensity of vehicles, distance travelled per day etc., data on issues like vintage of vehicle, fraction of distance travelled empty (for freight transport vehicles), whether the users would like to shift to public modes of transport (for private vehicles for passenger transport) and the like is also collected and presented.

Data on average fuel consumed per day and year as well as vintage are presented for all vehicles by make, as well as by class of market served by RO -- for all ROs where vehicle drivers were interviewed.

3.2 Sample Size (Passenger Transport)

The number of passenger transport vehicles covered in the field survey and for which data are analyzed, is given in Table 3.1. It may be noted that compared to this figure of 12,355 vehicles, the total field survey covered 15,687 vehicles. The questionnaire responses obtained for 3332 vehicles were rejected for further analysis -- the main reason being that the respondents did not give coherent/consistent responses to basic and important questions on distance travelled, milage and fuel purchase.

Table 3.1 shows that over half of the total vehicles are two-wheelers. The number of buses/mini-buses is only a little over 700, as a large number of buses in any state/UT are in the road transport corporation fleet -- and these corporations purchase HSD directly from the oil industry depots and installations.

Overall, 2-wheelers account for 53% of the sample size, 3-wheelers for 12%, cars/taxis/jeeps for 29%, and buses/mini-buses for 6%.

The survey data are analyzed for each type of vehicle to gather information on the following attributes :

(i) vintage;
(ii) number of vehicles used exclusively for intracity transport, inter-city/town travel, and travel to rural areas;
(iii) distance driven per day;
(iv) daily and annual usage of MS and HSD;
(v) occupancy; and
(vi) sesaonal variations of vehicle utilization.

For owner driven vehicles, particularly cars, two-wheelers and jeeps, the MS/HSD users were also asked if they were willing to shift to public modes of transport; and if yes, under what conditions (economy, reliability, less crowd etc.). Responses gathered to these questions are also compiled.

It may be noted that not all the filled-in questionnaires provide a responses to all the aspects listed above. To the extent data are provided in the questionnaires, they are analyzed and presented below.

3.3 Vehicle Vintage (Passenger Transport)

Table 3.2 summarizes the age distribution of passenger transport vehicles, the details are in Annexures IV.1 through IV.29. Table 3.2 shows that about 11% of 2-wheelers and 30% of 3-wheelers covered in the survey are more than 5 years old. As far as cars (and cars used as taxis) are concerned, only 8.5% are more than 5 years old. However, it is important to note that while less than 3.5% of MS using jeeps are more than 5 years old, more than 35% of HSD using jeeps (including jeeps used as taxis) are over 5 years old.

Overall, the vintage distribution of the vehicles covered in the survey does show that relatively few vehicles are more than 5 years old. This indicates the relatively rapid increase in the population of vehicles during the Seventh Five Year Plan (FYP) period (1985/86-1989/90) -- and conforms to fact that several makes of vehicles came into the market in the mid-1980s.

3.4 Shifting from Private to Public Modes of Road Passenger Transport

One set of questions asked to the people travelling in private vehicles (i.e. other than buses and mini-buses) pertained to the reasons that would induce them to shift to public modes of transport. The basic factors which may lead people to shift from 2-wheelers, 3-wheelers, cars, taxis and jeeps to mini-buses and buses are : (i) relative price differentials between the mode of transport used at present, and the public modes; (ii) increased reliability of the public modes of transport; (iii) less crowding of public buses and mini-buses; and (iv) increased speed of the public transport services. These sets of questions were answered by relatively few respondents.

Table 3.3 summarizes the survey findings. The respondents in Ambala and Karnal (Haryana) and Nainital seemed to indicate primarily that the tariffs of public transport services vis-a-vis private transport costs should reduce. However, respondents in Delhi/New Delhi, Ganganagar, Mirzapur and Varanasi indicated that increased reliability, less crowding, and faster service speed of the public transport system would be more important criteria.

Table 3.3 also shows that many respondents indicated that they could shift to public modes of transport if the latter improved in two or more ways. This suggests that concerted efforts need to be made to induce a large scale shift of passenger transport to public modes.

3.5 Type of Travel (Passenger Transport)

Over 82% of the respondents to this query in Delhi/New Delhi claimed to be using their vehicles solely for travel within the city (i.e. for intracity travel), compared to : (i) 28% in Ambala and Karnal districts of Haryana; (ii) 29% in Ganganagar district of Rajasthan; (iii) 4.5% in Nainital district of UP; and (iv) 13.5% in Mirzapur and Varanasi districts of UP. Table 3.4 gives details by type of vehicle.

This difference may be explained largely by the fact that Delhi/New Delhi is a city with a large resident population and large commercial centres, offices and even industrial areas within the city limits. In fact, the survey also shows that most of the vehicles that are used for inter-city/town travel to and from Delhi/New Delhi are used for commuting daily from/to nearby areas of Noida and Ghaziabad (in UP) and Gurgaon and Faridabad (in Haryana).

The situation is very different in the other districts where the survey was conducted. In fact, the survey was conducted at ROs which serve B, C, D and E class markets in these districts. Clearly, to the extent the respondents were interviewed at ROs serving 'D' class of markets, they were on a state or national highway -- which means that they were essentially engaged in inter-town/city travel or travel to rural areas at that time. In addition, there are no large cities in the districts covered in the survey, and people often need to travel from one township to another town or village.

It may be noted that this type of information, in addition to that discussed in section 3.4, is very important in devising a suitable strategy to expand and improve the existing public transport system -- so that the rise in MS consumption and sales can be effectively curbed.

3.6 Distance Travelled per Day (Passenger Transport)

Table 3.5 gives the frequency distribution of the distance that the various vehicles are driven on a day they are used. It is evident that the two most popular forms of private road passenger -- 2-wheelers and cars -- are driven mostly for less than 100 km per day; a possible exception being Nainital where only 48% of the cars covered in the survey are driven less than 100 km per day. The field survey in Ambala and Karnal districts showed that 96% of 2-wheelers and 82% of cars are driven less than 100 km per day. The corresponding figures for Ganganagar district are 95% and 94% respectively; for Mirzapur and Varanasi districts are 99% and 95% respectively; and for Delhi/New Delhi are 92% and 84%.

The survey also shows that 3-wheelers, taxis and jeeps are, on an average, driven more than 2-wheelers and cars. The field survey in Ambala and Karnal districts showed that 46% of 3-wheelers, 39% of taxis and 13% of jeeps are driven more than 100 km per day. Likewise, in Ganganagar, 96% of 3-wheelers and 69% of jeeps are driven more than 100 km per day; in Nainital district, 19% of 3-wheelers, 53% of taxis and 58% of jeeps are used more than 100 km per day; in Mirzapur and Varanasi districts, 98% of 3-wheelers, 91% of taxis and 84% of jeeps are used more than 100 km per day; and in Delhi/New Delhi, 80% of 3-wheelers, 27% of taxis and 16% of jeeps are used more than 100 km per day.

It may be noted that as several jeeps are used like cars, their overall average utilization rates tend to be relatively low like cars in certain cases. This is particularly true for Haryana and Delhi/New Delhi.

Regarding taxis, the distance travelled per day is considerably less than 3-wheelers because they tend to be more expensive and commuters prefer the latter. The sole exception is Nainital district -- where the taxis are used more because of the high tourist traffic.

3.7 Fuel Consumption (Passenger Transport)

Annual fuel consumption per vehicle of each type is estimated on the basis of : (i) its average fuel consumption (km/litre); (ii) fuel use per day (litre) on a day that the vehicle is used; and (iii) number of days in a year that a vehicle is actually used. Annexures III.1 through III.29 give detailed information on each type of vehicle surveyed; and these findings are summarized in Tables 3.6.

Table 3.6 shows the fuel use per day, number of days of vehicle use per year, and annual fuel consumption. For computing fuel use, data on distance travelled per day (discussed in section 3.6) is also used. The four values for fuel use per day are the low and high ends of a range plus the average of this range (computed from the user response for the fuel consumption in km/litre, and low and high end range of distance per day and the average for this range), and the response "given" by the user directly in the survey.

The range of number of days a vehicle is used per year is also found from the field survey. In fact, the low, high and average number of days are estimated on the basis of responses to questions pertaining to the number of days of vehicle use in the last one month and the last three months.* The lower and upper ends the range of number of says that a vehicle is used during the last one month and the last three months are normalized and compared.# The lower of the two lower-end-of-the-range numbers gives the lower bound estimates for the number of days a vehicle is driven each year. Likewise, the higher of the two higher-end-of-the-range numbers gives the upper bound estimates for the number of days a vehicle is driven each year. And the average or mid-point is obtained as the arithmatic mean of the lower and upper bound estimates.

The lower end estimates for fuel use per day and number of days of vehicle use per year are multiplied to obtain the lower end of the range for fuel use per year. Likewise, for the higher-end estimate of fuel use per year. The lower and higher end of range of distance a vehicle is driven per annum is obtained by multiplying the respective estimates of annual fuel use (litres) and fuel consumption (km/litre).

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* It may be noted that we had originally intended to include a question directly asking the number of days a particular vehicle has been driven in the past one year. However, during the course of the pilot survey, it was found that the response to this question was vague and hazy in nearly all cases. Consequently, this question was dropped.

# Normalization is done as follows : Let l1 and h1 be the lower and upper bound ranges for vehicle utilization in the last one month; and l3 and h3 likewise for the last three months. Then the lower of l1/30 and l3/90 gives the lower bound; and the higher of h1/30 and h3/90 gives the upper bound.

This process is carried out for each and every MS/HSD consumer covered in the field survey. The weighted averages are then computed by make of vehicle and class of market served by the RO it was interviewed at; and it is these weighted averages that are presented in Table 3.6.

Table 3.6 presents the data for each type of vehicle, and according to class of market of the RO at which the vehicle drivers were interviewed. It is evident from the data that there is no significant difference either in terms of fuel consumption rate (km/litre) or annual fuel consumption levels for any type of vehicle in any district, across the class of market of ROs at which the vehicle drivers were interviewed. The differences are usually within ± 10% of the overall average for each type of vehicle, and may in fact reflect differences in the mix of vehicle makes interviewed (and accepted for further analysis) more than anything else.

An attempt is also made to study the correlation (if any) between fuel consumption (km/litre) vs. vintage for each make of vehicles. This analysis is based solely on the data gathered from the field survey. The results for 2-wheelers and cars covered in Delhi/New Delhi are presented in Tables 3.7 and 3.8 respectively. From Tables 3.7 and 3.8, it is evident that the general view that the fuel consumption (km/litre) decreases with age for any type of make and type of vehicle, does not come out clearly. This is primarily because the fuel consumption will also depend on the state of maintenance of the vehicle. For instance, a seven-year old well-maintained vehicle can easily be as fuel efficient as new vehicle of the same make. Furthermore, the fuel consumption or fuel efficiency also depends on the speeds at which it is driven, the traffic situation and road conditions. Besides, no actual fuel consumption measurements were done as part of the field survey -- rather, vehicle drivers were only asked to state what they felt and thought was the fuel consumption of their vehicle.

Similar observations may be made from Tables 3.9 and 3.10, in which the fuel consumption vs milage data for 2-wheelers and cars covered in the Ambala and Karnal districts of Haryana are presented. Similar analyses for vehicles covered in other districts also suggested similar conclusions regarding fuel consumption vs. vintage.

3.8 Occupancy (Passenger Transport)

Table 3.11 gives the weighted average number of passengers carried by various types of vehicles in the different districts where the survey was conducted. The detailed data are presented in Annexures III.1 through III.29.

It may be noted that several vehicle drivers interviewed in the field survey did not respond to the question regarding occupancy. Nevertheless, Table 3.11 does show that the average occupancy of 2-wheelers is between one and two in all districts; and the average occupancy of cars is between three and four. Regarding 3-wheelers, the average occupancy levels vary widely across the districts covered in the survey; with the highest being in Ganganagar district of Rajasthan where a large number of Vikrams are used and are often overcrowded. Likewise, the field survey also shows that the occupancy levels of jeeps are also the highest in Ganganagar district of Rajasthan.

3.9 Seasonal Variations of Vehicle Utilization (Passenger Transport)

The frequency distribution of months of maximum and minimum use of vehicles is given in Annexures III.1 through III.29. The response to questions related to seasonality of vehicle utilization were rather sparse in the field survey, except in Ambala and Karnal districts. It is clear from the survey, that in Haryana, all type of vehicles for road passenger transport are used most in the months of March and April, and the least in the month of May -- although a certain number of vehicles may be used most and least in other months and seasons as well. In Nainital district, the utilization of 2-wheelers, cars and buses is maximum in May and June (i.e. the tourist season), and of 3-wheelers in June and July (again, in the tourist season).

Questions regarding seasonability of vehicle utilization were answered by very few respondents in other districts. However, many vehicle drivers in Delhi/New Delhi, Ganganagar and Varanasi were of the view that their vehicles are used more-or-less evenly throughout the year, except in the rainy season when the vehicles are driven much less.

Another way of gauging the monthly/seasonal variations in vehicle utilization is by analyzing the oil industry data on M sales through retail. Detailed data, month by month, and for each state/UT in the Northern Region, were made available to TERI only by IOC. The other three oil companies gave only the annual sales data. For the Northern Region as a whole, IOC accounted for 34.01% of MS retail sales in 1988/89, and 34.77% in 1989/90. IOCs share was maximum in Jammu & Kashmir in 1989/90 (47.3%) and minimum in Rajasthan in 1988/89 (27.15%). Against this background, and with a reasonable hypothesis that the monthly MS sales pattern by IOC is not significantly different from that by HPC, BPC and IBP, it becomes possible to draw reasonably firm conclusions regarding the seasonability of MS share and consumption.

Table 3.12 gives the monthly MS sales pattern through IOCs ROs in 1988/89 and 1989/90. It may be noted that MS sales in April (i.e. beginning of the year) is less than in March of the same year (i.e. end of the year). This is true for each state/UT in the Northern Region and may reflect partly the fact that the number of registered vehicles are increasing from month to month.

However, it is more interesting to note from Table 3.12 that the MS sales rise by 37% in May 1989 compared to May 1988 in the Northern Region as a whole (the maximum increase in any 12-month period), which is a reflection of the 47% increase of MS sales in Haryana alone (again, the maximum in any 12-month period). Likewise, the increase in sales from December 1989 to December 1988 were 9% for the Northern Region and 13% for Haryana (the respective minimums during the 12-month period under observation). This evidently shows the impact that the MS sales pattern in

Haryana alone has on that for the entire region. These facts could not be picked up in the field survey -- probably because very few respondents were able to clearly specify the months in which they use the vehicles the most or the least.

3.10 Impact of Elections on MS Sales Through Retail (Passenger Transport)

As far as the impact of elections on MS sales through retail is concerned, no firm evidence could be deciphered from the field survey. This is largely because the field survey was conducted during April to December 1990, while the general elections were held in late 1989.

Nevertheless, an attempt may be made to understand the implications of elections on MS sales from monthly data presented in Table 3.12. It may be observed that for the Northern Region as a whole, the per cent monthly sales of MS (by IOC) in 1988/89 and 1989/90 respectively were : (i) 7.94% and 8.10% in September; (ii) 8.59% and 8.53% in October; (iii) 8.64% and 8.49% in November; (iv) 8.83% and 8.00% in December; and (v) 8.78% and 8.40% in January. The share of sales in the month of Feburary is the same in both 1988/89 and 1989/90. It may be noted that the per cent MS sales in October through December of 1988 are higher than in the corresponding months of 1989. However, this may imply that elections have had no significant impact, and the pattern of sales discussed above may reflect other factors -- an important one being the addition to the vehicle fleet during the months of October through March in both 1988/89 and 1989/90.

3.11 Sample Size (Freight Transport)

The number of freight transport vehicles which were covered in the field survey, and for which the data are analyzed are given in Table 3.13. Although only 5098 questionnaire responses were considered as reliable for detailed analysis, it may be noted that a total of 11471 freight traffic vehicles were actually covered in the survey. A total of 6373 (more than half) questionnaire responses were rejected owing to a lack of consistency in the responses on basic issues like vehicle milage, distance travelled and fuel purchase.

Table 3.13 shows that nearly 60% of the vehicles are trucks. The number of jeeps, 3-wheelers and cars is small (it may be noted that certain cars are used for transporting newspapers etc. in some states). Also, Table 3.13 shows LCVs and tempos separately although there is not much to differentiate between the two. However, the data in Table 3.13 only reflects the vehicle type as specified by the vehicle owner/driver (for instance, the "Matador", manufactured by Bajaj Tempo Ltd., is specified by some drivers as a tempo and by others as an LCV). For analytical purposes, LCVs and tempos are treated together.

As for passenger transport, the survey data are analyzed for a variety of attributes. The details of the survey findings are presented in Annexres III.30 through III.51, and the results are summarized and analyzed in subsequent sections. Again, not all respondents answered all questions; to the extent the answers were obtained, they are analyzed.

3.12 Vehicle Vintage (Freight Transport)

Table 3.14 gives the age distribution of freight transport vehicles covered in the field survey; the details are in Annexures III.30 through III.51. It is evident from Table 3.14 that only 35% of the vehicles covered are more than five years old -- and conforms to the observation for passenger transport vehicles also that there was a rapid increase of vehicle population during the Seventh FYP plan period.

The only districts covered in the survey where the vehicle vintage does not conform to this pattern are Mirzapur and Varanasi, where it is seen that 60% of the vehicles covered in the field survey are over 5 years old. In fact, of the vehicles covered in the field survey in Mirzapur and Varanasi districts, about 65% of trucks, 78% of jeeps and 72% of 3-wheelers are more than 5 years old; only for LCVs/tempos is it seen that less than 33% of those covered in the field survey are of more than 5 years vintage.

Of the 2940 trucks covered in the field survey for which vintage data is available, about 42% are more than 5 years old. Likewise, 18% of LCVs/Tempos, 61% of HSD using jeeps and 12% of MS using jeeps are of vintage 5 years or more. The difference in vintage pattern between HSD using jeeps and MS using jeeps reflects the fact that the production and sales of MS using "Maruti Gypsy" increased rapidly in the latter half of the 1980s.

3.13 Type of Travel (Freight Transport)

Table 3.15 gives the number of vehicles used for intracity and inter-city/town transport and for travel to rural areas, as obtianed from the field survey. It is clear from Table 3.15 that there is a relatively higher fraction of freight carrying vehicles that are used for intracity transport in Delhi/New Delhi -- and reflects the large size of the metropolitan city. On the other hand, a large number of vehicles covered in the other districts are engaged in carrying goods to rural areas. This obviously reflects the fact that the road network has expanded considerably in the past decade or more and now covers a large number of rural areas.

It is also clear from Table 3.15 that trucks are used more than any other type of vehicle for inter-city/town freight movements. This observation is consistent with that (refer to section 3.14) trucks cover more distances per day than any other type of vehicle; and is also consistent with the sources/destinations of carrying freight. For instance Table 3.16 shows that trucks are used more than LCVs/tempos for carrying goods from within the Northern region to outside it (it may be noted that all jeeps and 3-wheelers covered in the survey are engaged in carrying goods only within the state/UT boundaries in which they are surveyed.

A useful observation from Table 3.16 is that a large number of trucks and LCVs/tempos covered in the field survey in Mirzapur and Varanasi carry goods from (to) Eastern and Western Regions to (from) the Northern Region (UP). This is due to the proximity of these districts to Bihar (Eastern Region) and MP (Western Region). However, a large number of trucks and LCVs/tempos covered in the field survey in Delhi/New Delhi carry freight from (to) the Northern Region to (from) outside it, although Delhi/New Delhi is not geographically close to the Northern Region boundaries. This probably indicates that Delhi/New Delhi is a major centre as far as freight traffic is concerned, and a significant proportion of vehicles carrying goods for exports from/imports to Northwest India pass through or around Delhi/New Delhi.

3.14 Distance Travelled Per Day (Freight Transport)

Table 3.17 summarizes the frequency distribution of average distance travelled per day by various types of freight carrying vehicles covered in the field survey.

Table 3.17 shows that 3-wheelers are used largely for carrying goods over relatively short distances of less than 200 kilometers per day, or even less than 100 kilometres. Jeeps may be driven somewhat longer distances. The survey shows that they are driven mostly less than 200 km daily in Haryana, Nainital and Delhi/New Delhi; while in Rajasthan and Eastern UP, they may be usually driven upto 300 km.

As far as LCVs/tempos are concerned, the survey shows that they are usually driven for less than 300 km per day in Haryana, Rajasthan and Delhi/New Delhi; but are quite often driven over longer distances in Nainital and Eastern UP.

However, a large number of trucks are shown to cover more than 300 kilometres per day; and in some cases, even 1000 km per day.* It may be noted that relatively few trucks in Haryana are driven more than 300 km daily; vis-a-vis trucks covered in the field surveys in other states and Delhi/New Delhi. This observation conforms to the data in Table 3.16, where it is shown that Haryana trucks operate largely within the state boundaries.

3.15 Fuel Consumption (Freight Transport)

Estimates for average fuel use per day, number of days of vehicle use per year, and annual fuel use levels are made in much the same way as for passenger transport (refer to section 3.7). Table 3.18 presents these estimates (along with fuel consumption norm in km/litre and annual distance driven) for each type of vehicle, and according to the class of market of the RO at which the vehicle drivers were interviewed.

Like for passenger transport vehicles, an attempt is also made to study the correlation between fuel consumption (km/litre) vs. vintage for each type of vehicle by make. This analysis is based solely on the data gathered from the field survey. The results for trucks in Delhi/New Delhi and Haryana are presented in Tables 3.19 and 3.20 respectively. Again, it is not possible to observe any direct correlation between fuel consumption norm and age of vehicle; and for reasons similar to those discussed in section 3.7.

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* Such trucks have more than one driver; the drivers operate in shifts.

3.16 Incidence and Frequency of Empty Trips (Freight Transport)

An important aspect of utilization of freight transport vehicles is the incidence and frequency of empty trips. Nearly all vehicle drivers who responded to the survey questions on whether their vehicles are ever driven without cargo/goods, answered in the affirmative. In addition, vehicle drivers also indicated the fraction of distance they travel empty. These findings are summarized in Table 3.21.

While travelling part of the distance empty may be inevitable for logistic reasons, the fact that some of the respondents report that over 50% of the distance they drive their vehicles is without any freight at all, is an indication of poor management and wasteful use of petroleum fuels. It may be noted from Table 3.21 that it is only in Haryana and Delhi/New Delhi that vehicle drivers reported that over half of the distance they drive is without any cargo/freight.

The survey also included questions on whether when the vehicles are carrying freight, they get overloaded often or not. Very few (less than 2%) vehicle drivers covered in the survey responded to this question, and those which did indicated that their vehicles are never overloaded!

3.17 Seasonal Variations in Vehicle Utilization (Freight Transport)

The frequency distribution of months of maximum and minimum use of freight transport vehicles is given in Annexures III.30 through III.51. As in the case of passenger transport, very few vehicle drivers were able to respond to these questions, except in Karnal and Nainital districts. Consequently, no firm conclusions on the seasonal variations of vehicle utilization can be drawn for the areas where the field survey was conducted.

The field survey shows that most trucks and LCVs/tempos are used maximum between November through May; and minimum in the months of June through September -- a period when it is either very hot or/and the rainfall occurs. The field survey in Nainital shows that LCVs/tempos and 3-wheelers are used maximum during the months of June through August (the peak tourist season), although several vehicle drivers also claimed that their vehicles are used the least during these months. The few responses obtained from truck and LCV/tempo drivers in Ganganagar, Varanasi and Mirzapur districts indicates that the vehicles are used most in the months of November through April and least in the months of June and July.

Therefore, one may conclude that in general, freight transport vehicles tend to be used most during the winter and spring, and least during the summer and rains. However, several vehicle driver also pointed out that any seasonal variations that do occur, happen largely because it may not be possible to drive the vehicle -- and not because of a lack of need for transporting goods.

Table 3.22 gives the type of freight carried by trucks, as found from the survey in various districts. The relatively large number of trucks carrying foodgrain, sugarcane, gur, cotton, fertilizer etc. may indicate to an extent that seasonal variations in vehicle utilization are signifcant. However, these very vehicles also carry other freight items in months when agricultural produce is not transported. This again leads to the conclusion that there may not be significant variations in the utilization of vehicles from one month to another, except when owing to weather conditions, it becomes difficult to drive.

Table 3.1 : Passenger Transport -- Sample Size of Vehicles

	2W	3W	Cars	Taxis	Jeeps	Buses/Mini-buses	Total
HAR	2657	177	763	120	214	242	4173
RAJ	604	164	176	-	339	43	1326
NAN	478	121	238	135	166	124	1262
UPP	1673	444	381	76	424	295	3293
DEL	1153	626	443	26	49	4	2301
Total	6565	1532	2001	357	1192	708	12355

Note :

HAR : Includes survey findings from Ambala and Karnal districts.
RAJ : Includes survey findings from Ganganagar district.
NAN : Includes survey findings from Nainital district.
UPP : Includes survey findings from Mirzapur and Varanasi districts.
DEL : Includes survey findings from Delhi/New Delhi.

Table 3.2 : Passenger Transport -- Age Distribution of Vehicles

	Age (years)					
	<1	1-2	2-3	3-5	>5	Total
A. Haryana (HAR)						
2-wheelers (MS)	369	872	804	534	78	2657
3-wheelers (MS)	8	48	71	48	2	177
Cars (MS)	130	284	209	124	13	760
Taxis (MS)	26	30	37	26	1	120
Jeeps (MS)	22	31	18	17	1	89
Jeeps (HSD)	13	32	30	46	3	124
Mini-buses (HSD)	1	14	26	14	0	55
Buses (HSD)	17	43	55	69	2	186
B. Rajasthan (RAJ)						
2-wheelers (MS)	53	70	170	214	97	604
3-wheelers (MS)	0	4	6	37	25	72
3-wheelers (HSD)	1	7	25	43	15	91
Cars (MS)	18	44	59	48	5	174
Jeeps (MS)	1	5	5	2	-	13
Jeeps (HSD)	5	13	53	146	106	323
Mini-buses (HSD)	0	2	4	18	9	33
Buses (HSD)	0	0	0	5	3	8
C. Nainital (NAN)						
2-wheelers (MS)	112	195	124	42	4	477
3-wheelers (MS)	21	20	11	63	5	120
Cars (MS)	38	111	55	29	4	237
Taxis (MS)	28	31	35	37	4	135
Jeeps (MS)	17	44	27	15	-	103
Jeeps (HSD)	1	16	19	27	-	63
Buses (HSD)	11	17	45	51	-	124
D. Other UP (UPP)						
2-wheelers (MS)	121	254	449	646	196	1666
3-wheelers (MS)	0	6	30	58	197	291
3-wheelers (HSD)	0	1	5	13	1	21
Cars (MS)	30	75	135	117	22	379
Taxis (MS)	0	0	3	8	1	12
Taxis (HSD)	0	0	0	19	45	64
Jeeps (MS)	2	1	7	26	4	40
Jeeps (HSD)	0	1	19	169	193	383
Mini-buses (HSD)	0	0	0	4	3	7
Buses (HSD)	0	4	9	82	190	285

Table 3.2 Contd.

	Age (years)					
	<1	1-2	2-3	3-5	>5	Total
E. Delhi/New Delhi (DEL)						
2-wheelers (MS)	210	227	179	187	344	1147
3-wheelers (MS)	68	82	66	118	288	622
Cars (MS)	80	104	59	73	127	443
Taxis (MS)	1	4	0	2	19	26
Jeeps (MS)	10	14	2	9	5	40
Jeeps (HSD)	0	2	2	5	0	9

Table 3.3 : Passenger Transport -- Reasons for Shifting to Public Modes

	2W ALL	3W ALL	CAR ALL	TAXI ALL	JEEP (MS)	JEEP (HSD)
A. HAR						
Shift if public modes become :						
Cheaper	1405	100	106	74	58	47
More reliable	515	8	74	18	15	27
Less Crowded	492	30	109	15	9	31
Faster	472	7	133	4	9	14
Any 2	485	23	40	7	1	13
Any 3	109	7	8	0	0	1
All	25	1	0	0	0	0

	2W ALL	3W (MS)	3W (HSD)	CAR ALL	JEEP ALL
B. RAJ					
Shift if public modes become :					
Cheaper	60	0	0	4	5
More reliable	233	2	4	56	15
Less Crowded	230	2	4	54	15
Faster	129	1	2	27	12
Any 2	94	1	2	27	3
Any 3	84	1	2	23	7
All	63	0	0	4	5

	2W ALL	3W ALL	CAR ALL	TAXI ALL	JEEP (MS)	JEEP (HSD)
C. NAN						
Shift if public modes become :						
Cheaper	454	0	162	0	43	55
More reliable	0	0	0	0	0	0
Less Crowded	0	0	0	0	0	0
Faster	0	0	0	0	0	0
Any 2	0	0	0	0	0	0
Any 3	0	0	0	0	0	0
All	0	0	0	0	0	0

Table 3.3. Contd.

	2W ALL	3W ALL	CAR ALL	TAXI (MS)	TAXI (HSD)	JEEP (MS)	JEEP (HSD)
D. UPP							
Shift if public modes become :							
Cheaper	174	1	43	2	1	2	3
More reliable	474	35	153	3	7	7	24
Less Crowded	425	37	174	6	9	8	32
Faster	215	21	111	4	8	3	22
Any 2	222	38	103	4	4	5	30
Any 3	63	5	36	1	4	2	5
All	152	0	38	1	1	1	1

	2W ALL	3W ALL	CAR ALL	TAXI ALL	JEEP (MS)	JEEP (HSD)
E. DEL						
Shift if public modes become:						
Cheaper	97	2	12	0	4	1
More reliable	261	6	54	0	8	2
Less Crowded	243	7	52	0	9	2
Faster	74	1	28	0	1	1
Any 2	177	3	30	0	7	1
Any 3	71	1	12	0	1	0
All	64	1	6	0	1	1

Table 3.4 : Passenger Transport -- Types of Travel

	Intracity	Inter-City/ Town	Rural Areas	Total
A. Haryana (HAR)				
2-wheelers (MS)	893	1417	143	2453
3-wheelers (MS)	42	53	47	142
Cars (MS)	45	435	87	567
Taxis (MS)	6	57	0	63
Jeeps (MS)	0	27	22	49
Jeeps (HSD)	4	31	59	94
Mini-Buses (HSD)	0	28	22	50
Buses (HSD)	0	92	75	167
Total	990	2140	455	3585
B. Rajasthan (RAJ)				
2-wheelers (MS)	197	232	94	523
3-wheelers (MS)	43	18	8	69
3-wheelers (HSD)	47	18	19	84
Cars (MS)	12	85	14	111
Jeeps (MS)	0	6	2	8
Jeeps (HSD)	0	122	87	209
Mini-Buses (HSD)	0	12	12	24
Buses (HSD)	0	2	2	4
Total	299	495	238	1032
C. Nainital (NAN)				
2-wheelers (MS)	2	297	37	336
3-wheelers (MS)	6	63	24	93
Cars (MS)	12	136	58	206
Taxis (MS)	9	47	0	56
Jeeps (MS)	9	33	49	91
Jeeps (HSD)	0	12	37	49
Buses (HSD)	0	6	7	13
Total	38	594	212	844
D. Other UP (UPP)				
2-wheelers (MS)	125	347	112	584
3-wheelers (MS)	34	183	97	314
3-wheelers (HSD)	11	2	0	13
Cars (MS)	43	163	21	227
Taxis (MS)	1	5	0	6
Taxis (HSD)	0	43	0	43
Jeeps (MS)	0	23	16	39
Jeeps (HSD)	0	73	145	218
Minis-buses (HSD)	0	3	1	4
Buses (HSD)	0	46	92	138
Total	214	888	484	1586

Table 3.4 Contd.

	Intracity	Inter-City/ Town	Rural Areas	Total
E. Delhi/New Delhi (DEL)				
2-wheelers (MS)	910	244	0	1154
3-wheelers (MS)	614	10	0	624
Cars (MS)	330	137	0	467
Taxis (MS)	25	1	0	26
Jeeps (MS)	10	7	0	17
Jeeps (HSD)	6	3	0	9
Buses (HSD)	3	1	0	4
Total	1898	403	0	2301

Table 3.5 : Passenger Transport -- Frequency Distribution of Distance Travelled Per Day

	Distance Travelled per Day (km)					
	<50	50-100	100-200	200-300	>300	Total
A. Haryana (HAR)						
2-wheelers (MS)	1101	1444	103	1	0	2649
3-wheelers (MS)	46	49	77	5	0	177
Cars (MS)	180	444	136	3	0	763
Taxis (MS)	41	31	46	1	0	119
Jeeps (MS)	13	59	18	0	0	90
Jeeps (HSD)	58	55	11	0	0	124
Mini-Buses (HSD)	16	21	18	1	0	56
Buses (HSD)	0	22	101	59	3	185
B. Rajasthan (RAJ)						
2-wheelers (MS)	386	190	26	0	0	602
3-wheelers (MS)	1	3	55	14	0	73
3-wheelers (HSD)	0	3	74	14	0	91
Cars (MS)	124	41	10	0	0	175
Jeeps (MS)	9	3	1	0	0	13
Jeeps (HSD)	45	44	144	78	3	314
Mini-Buses (HSD)	0	1	2	5	0	8
Buses (HSD)	0	0	7	13	15	35
C. Nainital (NAN)						
2-wheelers (MS)	30	235	212	1	0	478
3-wheelers (MS)	2	96	20	3	0	121
Cars (MS)	24	90	119	5	0	238
Taxis (MS)	0	64	61	8	2	135
Jeeps (MS)	5	60	35	3	0	103
Jeeps (HSD)	1	3	49	10	0	63
Buses (HSD)	0	0	13	111	0	124
D. Other UP (UPP)						
2-wheelers (MS)	1304	347	19	1	0	1671
3-wheelers (MS)	1	6	281	2	0	290
3-wheelers (HSD)	0	0	18	3	0	21
Cars (MS)	259	104	17	0	1	381
Taxis (MS)	3	3	1	5	0	12
Taxis (HSD)	1	0	2	20	41	64
Jeeps (MS)	20	5	12	3	0	40
Jeeps (HSD)	32	12	136	170	34	384
Minis-buses (HSD)	0	0	5	2	0	7
Buses (HSD)	0	2	163	91	32	288

Table 3.5 Contd.

	Distance Travelled per Day (km)					
	<50	50-100	100-200	200-300	>300	Total
E. Delhi/New Delhi (DEL)						
2-wheelers (MS)	697	363	85	4	0	1149
3-wheelers (MS)	9	113	481	16	3	622
Cars (MS)	226	148	62	6	1	443
Taxis (MS)	4	15	7	0	0	26
Jeeps (MS)	21	12	6	1	0	40
Jeeps (HSD)	3	5	1	0	0	9

Table 3.6 : Passenger Transport -- Fuel Use

	Fuel use day (litre)				Number of days of use/year			Fuel cons/year			Ann. Dist/ Vehicle (km)	
	low	high	ave	given	low	high	ave	low	high	milage	low	high
A. HARYANA (HAR)												
2W	0.88	2.21	1.52	1.55	269	316	292	248.7	696.7	40.99	10193.9	28554.9
2W/C	0.80	2.10	1.42	1.45	259	313	286	220.7	658.4	40.49	8938.9	26659.7
2W/D	0.94	2.29	1.59	1.63	276	317	296	268.8	722.2	41.14	11060.5	29712.3
2W/E	0.80	2.02	1.38	1.41	253	328	291	212.7	670.5	42.63	9065.9	28581.6
mb	0.96	2.32	1.61	1.68	276	316	296	273.9	728.1	41.94	11485.4	30535.8
sc	0.94	2.35	1.62	1.63	265	314	289	262.4	741.6	36.38	9547.9	26980.0
md	0.47	1.37	0.90	0.94	268	323	296	133.5	443.9	56.72	7571.3	25177.8
3W	5.34	11.17	8.21	8.13	267	328	298	1567.9	3765.1	15.64	24528.7	58902.2
3W/C	2.35	6.23	4.19	4.27	241	321	281	606.3	2031.1	16.49	9999.7	33497.3
3W/D	7.61	15.06	11.32	11.12	287	335	311	2295.8	5125.4	13.70	31444.1	70198.1
3W/E	1.29	3.05	2.14	2.44	237	315	276	312.9	978.5	31.11	9733.3	30441.7
CAR	4.90	10.47	7.64	7.41	275	310	293	1413.9	3224.1	11.39	16101.4	36715.9
CAR/C	3.73	8.56	6.08	5.89	270	308	289	1069.2	2608.1	11.82	12634.2	30818.2
CAR/D	5.71	11.81	8.73	8.50	279	309	294	1659.3	3641.2	11.04	18324.0	40211.6
CAR/E	3.09	7.27	5.11	4.53	259	336	298	796.9	2439.8	12.74	10154.1	31087.8
TAXI	5.88	12.78	9.26	9.83	264	327	295	1692.2	4364.1	10.93	18488.0	47677.6
TAXI/C	5.57	12.23	8.83	9 86	267	322	294	1603.5	4072.0	10.29	16493.1	41883.0
TAXI/D	6.04	13.08	9.49	9.81	263	329	296	1740.1	4521.4	11.27	19609.3	50952.5
TAXI/E	1.22	5.56	3.19	2.25	233	301	267	246.7	1616.6	12.50	3083.9	20207.4
DJEEP	3.54	9.05	6.17	6.46	245	306	276	940.4	2827.3	9.96	9362.1	28147.9
DJEEP/C	2.75	7.97	5.20	5.52	252	312	282	776.6	2481.9	10.32	8014.1	25612.9
DJEEP/D	4.18	9.94	6.96	7.27	242	304	273	1078.2	3117.6	9.63	10384.7	30028.6
DJEEP/E	0.42	4.17	2.08	1.00	183	243	213	76.0	1013.9	12.5	950.5	12673.6
PJEEP	4.95	10.40	7.64	8.42	215	253	234	1130.2	2725.8	11.46	12947.1	31225.8
PJEEP/C	5.08	10.57	7.80	8.37	174	222	198	876.0	2291.8	11.65	10207.5	26704.4
PJEEP/D	4.97	10.44	7.67	8.55	229	264	247	1234.9	2905.2	11.35	14014.5	32969.7
PJEEP/E	0.36	3.57	1.79	1.00	183	243	213	65.2	869.0	14.00	912.5	12166.7
BUS	32.86	56.93	44.89	45.42	294	347	321	9763.4	19879.3	3.91	38213.6	77807.2
BUS/C	30.86	54.60	42.73	44.92	300	347	324	9323.0	19109.3	3.91	36422.0	74653.8
BUS/D	34.53	58.75	46.64	46.18	293	349	321	10213.4	20565.8	3.92	39994.3	80533.5
BUS/E	25.83	51.67	38.75	34.50	228	304	266	5981.9	15951.9	4.00	23927.8	63807.4
MBUS	6.63	14.75	10.59	10.70	242	297	269	1595.3	4302.3	8.88	14158.5	38183.0
MBUS/C	7.53	16.18	11.77	11.69	233	278	255	1795.1	4460.6	10.09	18116.8	45018.9
MBUS/D	5.96	13.76	9.74	9.94	251	314	282	1449.1	4244.4	7.71	11175.1	32730.9
MBUS/E	4.38	10.42	7.29	8.33	243	324	284	1064.6	3379.6	8.00	8516.7	27037.0

Table 3.6 Contd.

	Fuel use day (litre)----				Number of days of use/year --------			Fuel cons/year			Ann. Dist/ Vehicle (km)	
	low	high	ave	given	low	high	ave	low	high	milage	low	high
B. RAJASTHAN (RAJ)												
2W	0.60	1.91	1.21	1.33	243	324	284	144.9	618.5	39.75	5760.6	24587.6
2W/B	0.60	1.88	1.20	1.34	243	324	284	145.2	611.0	40.39	5864.2	24677.4
2W/C	0.59	1.92	1.21	1.32	243	324	284	144.4	621.5	39.73	5737.4	24692.2
2W/D	0.60	1.92	1.21	1.36	243	324	284	145.6	621.6	38.96	5673.5	24217.2
mb	0.77	2.19	1.45	1.56	243	324	284	188.2	711.8	38.97	7335.0	27742.0
sc	0.44	1.67	1.00	1.13	243	324	284	106.1	540.5	39.49	4188.3	21344.7
md	0.42	1.41	0.88	1.05	243	324	284	101.5	457.7	51.82	5261.6	23719.2
D3W	6.96	12.88	9.92	10.93	243	324	284	1694.0	4180.2	24.37	41279.2	101862.6
D3W/B	11.68	21.25	16.47	18.20	243	324	284	2842.4	6894.8	15.84	45023.5	1092[illegible]3.3
D3W/C	5.94	11.13	8.54	9.18	243	324	284	1446.6	3610.3	26.14	37820.7	94388.1
D3W/D	3.66	6.92	5.29	6.24	243	324	284	889.9	2245.4	30.47	27117.8	68425.7
D3W/E	2.24	4.47	3.35	4.00	243	324	284	543.9	1450.3	33.00	17947.2	47859.3
P3W	5.95	10.90	8.42	8.89	243	324	284	1447.7	3537.0	23.41	33892.5	82804.0
P3W/B	4.32	8.64	6.48	7.25	243	324	284	1051.8	2604.8	23.46	24679.8	65812.9
P3W/C	7.22	12.79	10.00	10.53	243	324	284	1756.6	4150.0	22.55	39605.4	93567.7
P3W/D	3.96	7.80	5.87	5.94	243	324	284	964.0	2530.1	25.69	24763.1	64993.2
CAR	1.61	5.33	3.34	3.79	242	324	283	389.7	1726.7	14.23	5543.8	24565.7
CAR/B	2.43	6 49	4.36	4.53	243	324	283	589.6	2103 4	14.04	8280.4	29537.6
CAR/C	1.13	4.59	2.72	3.25	243	324	283	273.3	1486.7	14.55	3976.1	21631.1
CAR/D	1.36	5 12	3.10	3.79	241	323	282	329.5	1657.0	13.83	4556.0	22913.9
DJEEP	11.05	20.06	15.51	16.31	243	324	284	2688.2	6509.0	9.44	25366.9	61420.9
DJEEP/B	10.99	20.03	15.47	15.46	243	324	284	2674.8	6497.2	9.42	25199.7	61210.3
DJEEP/C	10.58	19.71	15.10	16.09	243	324	284	2574.1	6394.5	9.41	24218.1	60161.9
DJEEP/D	11.25	20.18	15.67	17.10	243	324	284	2736.6	6547.0	9.44	25826.3	61787.5
DJEEP/E	12.35	21.07	16.64	17.05	243	324	284	3004.1	6835.3	9.54	28654.6	65198.5
PJEEP	1.60	5.33	3.33	3.35	243	324	284	388.5	1729.0	13.50	5244.8	23341.7
PJEEP/B	3.39	7.81	5.53	5.17	243	324	284	824.9	2532.4	14.50	11960.5	36719.8
PJEEP/C	1.06	4.59	2.67	2.80	243	324	284	257.6	1488.0	13.20	3400.3	19641.6
BUS	71.79	103.14	87.47	92.43	243	324	284	17469	33464	3.24	56523.7	108280.4
BUS/B	77.62	111.27	94.44	101.67	243	324	284	18887	36101	3.04	57448.9	109806.8
BUS/C	72.02	103.08	87.55	91.52	243	324	284	17525	33445	3.26	57145.2	109060.8
BUS/D	65.08	95.24	80.16	86.67	243	324	284	15836	30899	3.33	52786.6	102998.2
MBUS	18.24	29.34	23.79	22.88	243	324	284	4439.2	9520.6	8.75	38843.4	83305.4
MBUS/C	12.84	21.76	17.30	17.67	243	324	284	3125.2	7061.4	9.50	29689.1	67083.7
MBUS/D	22.88	34.31	28.59	25.75	243	324	284	5566.4	11133	8.75	48706.4	97412.9
MBUS/E	20.56	33.61	27.08	26.17	243	324	284	5001.9	10905	8.00	40014.8	87239.5

Table 3.6 Contd.

	Fuel use day (litre)----				Number of days of use/year --------			Fuel cons/year			Ann. Dist/ Vehicle (km)	
	low	high	ave	given	low	high	ave	low	high	milage	low	high
C. NAINITAL (NAN)												
2W	2.13	4.33	3.22	3.16	304	324	323	646.9	1508.5	35.81	23164.0	54011.8
2W/B	1.66	3.44	2.55	2.56	304	335	319	506.3	1165.6	39.45	19974.3	45985.1
2W/C	2.40	4.81	3.60	3.45	304	348	326	728.6	1695.7	34.10	24843.4	57822.4
2W/D	2.03	4.17	3.09	3.11	304	339	321	616.2	1446.9	36.14	22266.2	52284.8
mb	1.76	3.57	2.66	2.56	304	334	319	534.8	1206.1	39.87	21325.9	48091.0
sc	2.52	5.12	3.81	3.80	304	351	327	765.3	1826.4	31.20	23875.9	56977.9
md	0.71	1.43	1.07	1.00	304	304	304	217.3	434.5	70.00	15208.3	30416.7
3W	3.32	6.53	4.92	5.97	247	321	284	820.1	2095.4	19.16	15710.4	40142.5
3W/B	2.40	4.89	3.64	3.59	243	321	282	583.4	1566.9	20.00	11668.9	31338.4
3W/C	3.16	6.40	4.78	6.02	250	323	287	790.4	2060.4	18.92	14953.0	38981.7
3W/D	4.13	7.72	5.93	7.30	245	319	282	1010.6	2468.4	19.05	19256.0	47033.2
CAR	7.69	15.52	11.58	12.35	262	302	282	2120.8	4846.9	10.25	21746.7	49700.6
CAR/B	7.01	14.78	10.85	11.94	256	299	278	2026.9	4682.3	10.87	22027.8	50886.4
CAR/C	7.65	15.29	11.46	12.12	267	302	284	2121.8	4759.1	10.30	21845.8	48997.8
CAR/D	8.11	16.18	12.13	12.82	260	303	281	2173.8	5030.4	9.86	21430.5	49593.6
TAXI	6.95	13.21	10.08	12.13	254	326	290	1801.4	4339.9	13.42	24178.4	58251.5
TAXI/B	4.40	8.81	6.60	8.24	245	324	285	1101.2	2888.8	14 15	15578.7	40868.1
TAXI/C	8.75	16 32	12 54	14.68	276	340	308	2441.2	5604.0	12.06	29438.0	67577.8
TAXI/D	7.34	13.86	10.60	12.82	248	320	284	1832.0	4434.9	13.75	25183.0	60962.7
DJEEP	13.73	25.52	19.63	20.02	297	359	328	4162.6	9284.4	8.75	36406.4	81201.8
DJEEP/B	12.50	25.00	18.75	19.50	304	365	335	3802.1	9125.0	8.00	30416.7	73000.0
DJEEP/C	14.87	26.43	20.65	21.92	296	357	327	4506.4	9610.2	8.95	40314.1	85972.2
DJEEP/D	11.88	23.75	17.81	15.94	297	357	327	3593.0	8630.7	8.75	31438.5	75518.9
PJEEP	6.60	12.96	9.77	10.59	242	290	266	1757.8	4010.8	13.02	22885.8	52218.2
PJEEP/B	10.63	18.46	14.54	14.82	264	303	284	3155.7	6338.7	11.88	37496.5	75319.1
PJEEP/C	7.29	14.71	10.99	10.97	273	310	291	2114.1	4732.5	12.94	27359.4	61243.8
PJEEP/D	4.83	10.01	7.42	8.95	214	273	243	1067.9	2777.9	13.44	14354.5	37340.9
BUS	47.38	72.26	59.82	62.70	303	365	334	14370	26350	4.00	57481.0	105398.7
BUS/B	49.14	73.62	61.38	59.66	297	363	330	14771	26767	4.00	59085.2	107066.7
BUS/C	45.89	70.89	58.39	64.73	304	365	335	13958	25875	4.00	55833.3	103500.0
BUS/D	50.00	75.00	62.50	60.00	304	365	335	15208	27375	4.00	60833.3	109500.0

Table 3.6 Contd.

	Fuel use day (litre)----				Number of days of use/year --------			Fuel cons/year			Ann. Dist/ Vehicle (km)	
	low	high	ave	given	low	high	ave	low	high	milage	low	high
D. OTHER UP (UPP)												
2W	0.47	1.82	1.09	1.30	243	324	283	114.3	589.4	36.92	4221.2	21760.6
2W/B	0.38	1.58	0.93	1.10	242	324	283	91.5	511.5	40.53	3708.1	20731.3
2W/C	0.48	1.86	1.11	1.34	243	324	284	115.7	604.7	35.94	4158.8	21733.4
2W/D	0.55	2.05	1.24	1.50	244	324	284	133.8	663.4	33.06	4424.3	21931.6
2W/E	0.73	2.27	1.45	1.68	244	324	284	177.1	736.7	32.23	5707.7	23746.2
mb	0.67	2.22	1.39	1.68	243	324	284	162.8	718.3	33.13	5394.1	23799.1
sc	0.40	1.70	1.00	1.18	243	324	283	98.3	551.3	37.16	3652.1	20486.8
md	0.17	1.12	0.60	0.72	244	324	284	41.0	362.9	49.59	2034.1	17995.9
D3W	5.69	10.67	8.18	6.60	243	323	283	1380.4	3450.2	20.10	27739.5	69333.5
D3W/B	6.50	11.50	9.00	7.35	242	323	283	1575.9	3717.6	20.00	31517.5	74351.9
D3W/C	4.92	9.85	7.39	6.00	242	323	283	1193.5	3182.6	20.33	24267.4	64713.0
D3W/D	23.62	26.85	25.23	24.55	185	240	213	896.9	2233.6	34.52	30961.0	77101.1
D3W/E	5.00	10.00	7.50	5.50	243	324	283	1214.3	3238.0	20.00	24285.1	64760.1
P3W	5.00	9.54	7.27	7.27	243	324	283	1215.6	3088.0	21.31	25906.2	65807.8
P3W/B	4.38	8.75	6.56	6.79	242	323	283	1062.2	2829.2	22.65	24062.3	64093.3
P3W/C	5.09	9 61	7.35	7.32	243	324	283	1235.9	3113.8	20.77	25666.5	64667.3
P3W/D	6.56	11.91	9.23	8.66	243	324	284	1595.9	3863.4	18.57	29633.8	71738.9
P3W/E	5.75	9.93	7.84	7.63	243	324	284	1398.7	3223.0	20.55	28739.2	66221.7
CAR	1 95	5.98	3.84	4.04	240	321	281	414.3	1308.1	13.02	5394.7	17031.3
CAR/B	1.08	4.71	2.74	3.14	238	318	278	258.4	1498.9	13.61	3516.4	20401.8
CAR/C	2.37	6.60	4.37	4.68	241	322	281	574.4	2125.6	12.86	7386.4	27334.3
CAR/D	3.36	8.07	5.60	5.44	237	318	278	816.5	2597.2	12.21	9971.8	31718.7
CAR/E	5.08	10.43	7.74	7.95	243	324	284	1237.1	3384.4	9.84	12175.9	33309.4
DTAXI	25.87	35.81	30.84	29.86	244	324	284	6322.7	11607	9.98	63128.1	115885.9
DTAXI/B	23.88	33.43	28.64	28.23	243	324	284	5811.1	10645	10.08	58557.7	109284.9
DTAXI/C	26.15	36.15	31.15	30.31	243	324	284	6364.1	11730	10.00	63641.0	117299.1
DTAXI/D	26.11	36.20	31.16	30.22	246	324	285	6421.3	11716	9.93	63737.3	116292.6
DTAXI/E	27.27	37.27	32.27	30.36	243	324	284	6636.4	12093	10.00	66363.6	120929.3
PTAXI	11.35	18.96	15.11	17.00	243	324	284	2762.3	6150.6	10.50	29003.7	64580.9
PTAXI/B	8.53	15.86	12.10	13.50	243	324	284	2075.7	5145.2	11.00	22832.8	56597.5
PTAXI/C	11.64	18.86	15.21	16.75	243	324	284	2831.4	6119.1	11.25	31853.6	68840.1
PTAXI/D	16.85	26.20	21.53	22.00	243	324	284	4100.6	8501.6	9.00	36905.6	76514.8
PTAXI/E	5.00	10.00	7.50	9.00	243	324	284	1216.7	3244.4	10.00	12166.7	32444.4
DJEEP	15.89	25.91	20.88	21.37	244	324	284	3883.6	8395.7	9.70	37678.2	81453.6
DJEEP/B	15.25	25.37	20.30	20.94	243	324	284	3711.9	8230.5	9.73	36108.7	80065.4
DJEEP/C	17.75	28.08	22.92	22.76	243	324	284	4319.5	9111.9	9.92	42853.1	90397.3
DJEEP/D	15.93	26.03	20.94	21.70	246	323	285	3929.3	8414.9	9.42	37006.2	79252.2
DJEEP/E	13.39	22.67	17.99	18.96	243	324	284	3259.3	7354.5	9.79	31910.4	72004.3
PJEEP	5.23	11.52	8.26	7.48	243	324	284	1273.0	3736.2	10.83	13779.8	40444.2
PJEEP/B	4.07	10.32	7.06	7.00	243	324	284	990.7	3349.8	10.14	10048.7	33976.4
PJEEP/C	3.92	9.46	6.55	5.85	243	324	284	955.0	3068.2	11.19	10684.5	34325.1
PJEEP/D	9.09	18.18	13.64	10.00	243	324	284	2212.1	5899.0	11.00	24333.3	64886.9
PJEEP/E	6.65	13.38	9.92	9.10	243	324	284	1618.6	4340.7	10.73	17372.7	46589.9

Table 3.8 Contd.

	Fuel use day (litre)----				Number of days of use/year --------			Fuel cons/year			Ann. Dist/ Vehicle (km)	
	low	high	ave	given	low	high	ave	low	high	milage	low	high
BUS	63.43	107.30	85.36	89.99	246	323	285	15614	34709	2.52	39319.0	87404.1
BUS/B	60.09	104.62	82.36	85.32	243	324	284	14622	33943	2.58	37722.5	87566.4
BUS/C	63.93	108.89	86.41	90.00	243	324	284	15555	35328	2.36	36732.6	83425.4
BUS/D	63.49	107.09	85.29	90.86	250	322	286	15883	34494	2.56	40675.1	88337.6
BUS/E	66.21	107.77	86.99	92.95	243	324	284	16112	34966	2.65	42655.0	92569.6
MBUS	16.19	28.21	22.20	25.27	243	324	284	3939.7	9154.0	8.57	33768.7	78462.6
E. DELHI/NEW DELHI (DEL)												
2W	0.74	2.19	1.44	1.45	251	329	290	184.5	719.3	37.62	6940.0	27061.8
mb	0.94	2.36	1.64	1.73	251	329	290	235.7	777.1	39.86	9397.5	30978.4
sc	0.71	2.18	1.43	1.42	251	329	290	-179.4	717.8	36.92	6622.8	26504.7
md	0.37	1.43	0.88	0.89	251	329	290	92.3	470.9	49.66	4581.6	23380.3
3W	3.96	7.85	5.90	5.76	261	327	294	1034.2	2566.3	23.59	24392.5	60530.3
CAR	3.01	7.51	5.16	5.23	275	336	306	830.4	2525.2	13.13	10900.6	33150.3
TAXI	5.69	12.38	9.01	9.24	289	350	319	1651.7	4344.6	10.37	17120.5	45033.5
PJEEP	3.39	8.36	5.76	6.88	275	340	307	927.4	2849.5	11.77	10914.7	33535.6
DJEEP	3.69	8.68	6.10	6.06	274	337	305	1000.8	2910.6	11.11	11119.8	32339.8
MINIBUS	3.28	8.23	5.65	6.63	243	324	284	798.4	2669.9	11.00	8782.8	29369.0
BUS	96.67	146.25	121.46	120.00	284	345	314	26784	49072	3.38	90394.5	165618.8

Table 3.7 : Passenger Transport -- Fuel Consumption vs. Vintage for 2-wheelers
(Delhi/New Delhi)

	No.of	<----------------milage (km/litre) for the following vintage--------------------->								
	vehicles	<1 yr	1-2 yrs	2-3 yrs	3-5 yrs	5-7 yrs	7-10 yrs	10-15 yrs	15-20 yrs	>20 yrs
Mopeds	29	41.82	51.99	47.69	60.00	30.00	50.00	-	-	-
Bajaj	454	38.61	39.38	39.13	37.00	37.04	34.95	35.35	33.29	35.00
Chetak	81	34.79	38.31	36.63	38.18	35.38	36.60	37.25	-	-
Enfield	10	30.00	26.00	-	33.25	-	-	33.00	40.00	32.00
Hero Honda	11	67.20	53.00	60.00	52.50	57.50	-	-	-	-
Kawasaki	16	49.38	43.70	45.00	32.50	-	-	-	-	-
K. Honda	8	40.00	44.83	-	-	-	-	-	-	-
Lambretta	28	27.50	25.00	-	26.50	23.50	35.00	29.64	29.40	31.93
LML	140	39.56	38.99	39.30	36.45	41.67	-	32.00	-	-
Priya	195	38.43	38.06	36.86	37.05	33.81	32.60	32.52	32.89	30.00
Rajdoot	33	45.75	40.50	37.50	35.67	38.33	35.71	31.50	32.33	40.00
Vijay S	18	-	-	-	40.00	33.93	27.93	33.25	-	-
Yamaha	48	44.13	40.71	40.31	38.33	30.00	-	-	-	-
Yezdi	23	41.00	29.83	37.50	29.40	36.50	30.00	28.45	24.00	-
Others	34	50.16	36.35	39.22	43.65	41.25	38.75	33.50	-	15.88

Table 3.8 : Passenger Transport -- Fuel Consumption vs Vintage for Cars
(Delhi/New Delhi)

	No. of	<----------------milage (km/litre) for the following vintage--------------------->								
	vehicles	<1 yr	1-2 yrs	2-3 yrs	3-5 yrs	5-7 yrs	7-10 yrs	10-15 yrs	15-20 yrs	>20 yrs
Ambassador	66	10	9.94	11	10	9.92	9.61	9.81	8.8	9.56
Contessa	9	9.75	10.88	10	-	7.5	-	9	-	-
Fiat	110	12.41	12.19	11.61	11.36	12.14	10.5	10.93	10.63	10.65
Maruti	172	15.37	15.50	16.07	15.09	14.86	12	-	-	-
MVan	59	13.94	15.13	13.73	14.18	13.5	10	-	-	-
NE118	4	11.33	-	-	8.5	-	-	-	-	-
Others	22	12	12	12	10.69	9	12	-	-	7

Table 3.9 : Passenger Transport -- Fuel Consumption vs. Vintage for 2-wheelers
(Haryana)

	No. of	<----------------milage (km/litre) for the following vintage------------------								
	vehicles	<1 yr	1-2 yrs	2-3 yrs	3-5 yrs	5-7 yrs	7-10 yrs	10-15 yrs	15-20 yrs	>20
Mopeds	361	69.5	61.3	63.52	65.14	59.21	-	-	-	-
Bajaj	600	38.24	37.82	35.19	36.31	31.63	30.85	30.6	-	-
Enfield	48	-	22.49	30.03	27.67	-	33.15	-	-	-
Hero Honda	237	52.33	48.81	48.64	46.16	-	-	-	-	-
Kawasaki	89	49	46.64	44.83	41.8	-	-	-	-	-
Kin. Honda	47	59.81	52.24	63.81	31.10	-	-	-	-	-
LML	294	40.65	36.85	36.39	33.39	33.5	32	-	-	-
Narmada	31	-	38.5	39.6	37.67	-	-	-	-	-
Priya	91	-	37	36	35	-	-	-	-	-
Rajdoot	328	36.67	38.9	43.34	34.4	27	37.5	35	40	-
Yamaha	77	48	47.25	45.38	44	-	-	-	-	-

Table 3.10 : Passenger Transport -- Fuel Consumption vs Vintage for Cars
(Haryana)

	No. of	<----------------milage (km/litre) for the following vintage--------------------								
	vehicles	<1 yr	1-2 yrs	2-3 yrs	3-5 yrs	5-7 yrs	7-10 yrs	10-15 yrs	15-20 yrs	>20 yr
Ambassador	174	9.50	8.9	11.6	10.83	10.58	10	-	12	-
Contessa	23	9.3	10.1	10.4	8.5	-	-	-	-	-
Fiat	138	10.31	11.25	9.75	8.67	8.83	9.25	-	-	-
Maruti	389	16.25	16.94	14.2	15.58	14.53	-	-	-	-

Table 3.11 : Passenger Transport -- Weighted Average No. of Passengers per Vehicle

	HAR	RAJ	NAN	UPP	DEL
2-wheelers	1.26	1.71	N.A.	1.73	1.57
3-wheelers	4.56	9.31	N.A.	6.13	2.71
Cars	3.23	3.67	N.A.	3.80	3.01
Taxis	3.61	N.A.	N.A.	N.A.	N.A.
Jeeps	4.26	13.54	N.A.	6.86	4.25
Buses	N.A.	N.A.	51.35	N.A.	N.A.
Mini-buses	8.50	N.A.	N.A.	N.A.	N.A.

N.A. : Not available from field survey.

Table 3.12 : Monthly MS Sales Through Retail by IOC (tonnes)

	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Total
A. 1988/89													
Chandigarh	544	563	574	578	606	594	610	607	622	620	611	680	7209
Delhi	6816	6594	6707	6967	7131	7191	7334	7624	7729	7818	6757	7484	86154
Haryana	1914	1947	2047	1954	2011	1916	2023	2047	2163	1962	2249	2337	24570
Him. Pradesh	476	498	545	482	472	470	560	469	509	470	443	504	5898
J&Kashmir	844	988	1054	1023	1157	843	1012	921	878	715	749	878	11062
Punjab	4628	4694	4742	4701	4957	4630	5444	5249	5371	5183	5383	5486	60468
Rajasthan	1825	2002	2002	1915	1963	1916	2030	2085	2079	1972	2129	2084	24002
Utt. Pradesh	6682	7039	8104	6745	6466	6913	7470	7631	7879	8313	7483	8157	88882
Total	23731	24325	25775	24365	24763	24473	26483	26633	27230	27053	25804	27610	308245
B. 1989/90													
Chandigarh	663	717	735	725	708	734	733	720	719	738	693	747	8632
Delhi	7351	8329	7721	8129	8101	8138	8588	8030	7960	8477	7924	8554	97302
Haryana	2175	2859	2685	2602	2448	2523	2562	2662	2437	2506	2668	2919	31046
Him. Pradesh	499	661	737	600	566	590	632	607	570	598	654	691	7405
J&Kashmir	839	1149	1255	1183	1142	1059	1129	1021	930	757	744	858	12066
Punjab	5285	6174	6074	6100	5976	6160	6605	6315	6104	6234	5905	6950	73882
Rajasthan	2084	2576	2450	2515	2366	2490	2391	2633	2376	2593	2856	2883	30213
Utt. Pradesh	7749	10754	9417	8953	8280	8327	8970	9467	8538	9216	9548	10713	109932
Total	26645	33219	31074	30807	2[illegible]7	30021	31610	31455	29634	31119	30992	34315	370478

Table 3.13 : Freight Transport -- Sample Size of Vehicles

	Trucks	LCVs	Tempos	Jeeps	3-wheelers	Cars	Total
HAR	1414	350	440	124	144	24	2496
RAJ	408	58	62	39	-	-	567
NAN	-	41	204	-	109	-	354
UPP	1089	176	87	66	109	-	1527
DEL	80	12	31	-	31	-	154
TOTAL	2991	637	824	229	393	24	5098

Table 3.14 : Freight Transport -- Age Distribution of Vehicles

	Age (Years)					
	<1	1 to 2	2 to 3	3 to 5	>5	Total
A. Haryana (HAR)						
Trucks (HSD)	128	217	355	338	375	1413
LCVs/Tempos (HSD)	36	184	254	202	111	787
Jeeps (HSD)	8	7	15	10	8	48
Jeeps (MS)	16	18	10	20	9	73
3-wheelers (HSD)	0	4	8	2	1	15
3-wheelers (MS)	4	20	53	49	13	139
Cars (MS)	5	5	6	5	3	24
Total	197	455	701	626	520	2499
B. Rajasthan (RAJ)						
Trucks (HSD)	9	52	104	94	142	401
LCVs/Tempos (HSD)	3	11	35	33	38	120
Jeeps (HSD)	0	0	1	5	33	39
Total	12	63	140	132	213	560
C. Nainital (NAN)						
LCVs/Tempos (HSD)	53	68	48	44	31	244
3-wheelers (MS)	28	26	27	12	16	109
Total	81	94	75	56	47	353
D. Other UP (UPP)						
Trucks (HSD)	13	26	159	167	685	1050
LCVs/Tempos (HSD)	10	24	71	72	86	263
Jeeps (HSD)	0	1	5	8	52	66
3-wheelers (HSD)	0	0	3	4	3	10
3-wheelers (MS)	0	0	8	16	75	99
Total	23	51	246	267	901	1488
E. Delhi/New Delhi (DEL)						
Trucks (HSD)	5	7	12	19	33	76
LCVs/Tempos (HSD)	3	8	11	9	13	43
3-wheelers (HSD)	2	1	5	3	18	29
Total	10	16	28	31	64	148

Table 3.15 : Freight Transport -- Type of Travel

	Intra-City	Inter-City/ Town	Rural	Total
A. Haryana (HAR)				
Trucks (HSD)	2	687	283	972
LCVs/Tempos (HSD)	64	147	114	325
Jeeps (HSD)	0	14	14	28
Jeeps (MS)	0	13	21	34
3-wheelers (HSD)	3	2	0	5
3-wheelers (MS)	63	21	17	101
Cars (MS)	0	0	0	0
Total	132	884	449	1465
B. Rajasthan (RAJ)				
Trucks (HSD)	2	211	73	286
LCVs/Tempos (HSD)	14	37	25	76
Jeeps (HSD)	1	23	7	31
Total	17	271	105	393
C. Nainital (NAN)				
LCVs/Tempos (HSD)	0	86	26	112
3-wheelers (MS)	11	16	10	37
Total	11	102	36	149
D. Other UP (UPP)				
Trucks (HSD)	0	584	52	636
LCVs/Tempos (HSD)	16	63	96	175
Jeeps (HSD)	6	5	12	23
3-wheelers (HSD)	1	1	0	2
3-wheelers (MS)	23	45	16	84
Total	46	698	176	920
E. Delhi/New Delhi (DEL)				
Trucks (HSD)	24	56	0	80
LCVs/Tempos (HSD)	30	13	0	43
3-wheelers (HSD)	31	0	0	31
Total	85	69	0	154

Table 3.16 : Freight Transport -- Number of Vehicles Carrying Traffic to Various Regions

	Within State/ UT*	Within Northern Region	To Western Region	To Eastern Region	To Southern Region	To All Over India
A. Haryana (HAR)						
Trucks (HSD)	329	250	2	0	0	0
LCVs/Tempos (HSD)	476	147	0	0	0	0
B. Rajasthan (RAJ)						
Trucks (HSD)	61	141	127	12	46	2
LCVs/Tempos (HSD)	49	32	29	0	0	0
C. Nainital (NAN)						
LCVs/Tempos (HSD)	137	88	5	0	0	0
D. Other UP (UPP)						
Trucks (HSD)	257	182	162	418	63	6
LCVs/Tempos (HSD)	61	59	47	84	2	0
E. Delhi/New Delhi (DEL)						
Trucks (HSD)	0	30	36	6	14	2
LCVs/Tempos (HSD)	0	17	5	1	0	1

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* Excludes vehicles used solely for intracity transport purposes. In the field survey, the source/destinations of freight traffic were asked for. The respondents gave a list of name of towns, villages and cities. If all these places were in the state/UT in which the particular vehicle was surveyed, it was categorized as "within state/UT". If one or more places were in any other state/UT in the Northern Region, it was categorized as "within Northern Region". If one or more places were beyond the boundaries of the Northern Region, it was categorized according to the Region in which those places are. If the response was "All India", it was categorized as such.

Table 3.17 : Freight Transport -- Frequency Distribution of Distance Travelled per Day (km)

	Distance (km)					
	<50	50 to 100	100 to 200	200 to 300	>300	Total
A. Haryana (HAR)						
Trucks (HSD)	37	331	627	273	143	1411
LCVs/Tempos (HSD)	45	374	297	59	4	779
Jeeps (HSD)	2	24	23	1	0	50
Jeeps (MS)	5	42	24	3	0	74
3-wheelers (HSD)	5	9	1	0	0	15
3-wheelers (MS)	61	54	23	1	0	139
Cars (MS)	2	14	6	2	0	24
Total	157	848	1001	339	147	2492
B. Rajasthan (RAJ)						
Trucks (HSD)	9	52	104	94	142	401
LCVs/Tempos (HSD)	0	1	18	73	28	120
Jeeps (HSD)	0	0	16	22	1	39
Total	9	53	138	189	171	560
C. Nainital (NAN)						
LCVs/Tempos (HSD)	0	19	60	72	93	244
3-wheelers (MS)	3	74	29	3	0	109
Total	3	93	89	75	93	353
D. Other UP (UPP)						
Trucks (HSD)	0	0	93	108	885	1086
LCVs/Tempos (HSD)	0	6	36	38	183	263
Jeeps (HSD)	0	0	5	51	10	66
3-wheelers (HSD)	0	1	0	4	5	10
3-wheelers (MS)	0	19	71	0	9	99
Total	0	26	205	201	1092	1524
E. Delhi/New Delhi (DEL)						
Trucks (HSD)	5	14	15	7	39	80
LCVs/Tempos (HSD)	9	13	13	0	8	43
3-wheelers (HSD)	11	14	5	1	0	31
Total	25	41	33	8	47	154

Table 3.18 Freight Transport — Fuel Use

	Fuel use/day (litre)----				Number of days of use/year --------			Fuel cons/year			Ann. Dist/ Vehicle (km)	
	low	high	ave	given	low	high	ave	low	high	milage	low	high
A. HARYANA (HAR)												
dTRUK	33.64	57.81	45.70	48.24	271	340	306	9273.90	19825.47	3.49	32324.7	69102.8
dTRUK/C	30.50	54.47	42.46	44.31	271	343	307	8361.49	18742.37	3.48	29078.4	65179.5
dTRUK/D	34.53	58.69	46.58	49.49	271	340	305	9571.98	20136.80	3.48	33351.6	70162.7
dTRUCK/E	35.74	60.47	48.08	50.11	268	339	303	9664.15	20530.64	3.45	33383.9	70921.8
dLT	12.35	22.98	17.64	18.88	260	327	293	3170.60	7417.14	7.45	23789.83	55555.30
dLT/C	11.38	22.58	16.95	17.47	272	333	303	3155.58	7630.71	7.22	22637.33	54795.64
dLT/D	12.95	23.07	17.99	19.82	253	323	288	3175.59	7212.75	7.61	24566.86	55485.32
dLT/E	12 20	23.50	17.82	18.45	259	328	294	3184.73	7716.23	7.36	23571.35	57053.34
dJEEP	6.75	13.60	10.16	10.77	232	300	266	1609.09	4157.61	11.69	18804.8	48588.3
dJEEP/C	6.14	12.54	9.29	9.97	256	314	285	1543.23	3993.98	10.02	15466.3	40027.7
dJEEP/D	6.53	13.05	9.79	11.00	213	287	250	1476.57	3832.21	13.26	19578.2	50812.2
dJEEP/E	8.65	17.45	13.05	11.50	251	319	285	2179.86	5562.66	9.50	20708.7	52845.3
pJEEP	4.54	9.00	6.76	8.47	220	261	240	1047.03	2456.34	15.49	16214.9	38040.1
pJEEP/C	4.43	8.86	6.65	7.36	229	255	242	977.55	2186.51	14.79	14453.7	32329.1
pJEEP/D	4.56	9.03	6.78	8.73	218	263	240	1063.25	2519.30	15.65	16639.8	39427.1
d3W	4.32	10.53	7.31	8.67	260	350	305	1090.39	3829.31	9.50	10434.7	36378.5
d3W/C	4.84	12.04	8.29	8.00	256	309	322	1237.39	5124.26	8.00	9899.1	40994.1
d3W/D	3.59	9 24	6 29	8.38	259	327	293	908.82	2990.71	8.94	8122.6	26729.4
d3W/E	5.96	11.92	8.94	11.50	274	345	309	1509.13	3946.13	15.50	23391.6	61168.7
p3W	2 21	5.95	3.98	4.64	263	335	299	620.15	2024.19	16.76	10395.3	33930.7
p3W/C	2.02	6.14	3.95	4.57	249	329	289	540.16	2058.31	13.64	7370.2	28084.4
p3W/D	2.31	5.88	4.02	4.76	272	339	305	667.57	2025.09	18.25	12185.5	36965.0
p3W/E	2.26	5.77	3.94	4.43	264	336	300	630.26	1954.67	18.26	11509.2	35694.0
CAR	6.25	11.93	9.07	11.40	202	231	216	1372.98	2860.04	12.79	17562.7	36584.6
CAR/C	7.71	12.92	10.31	12.75	201	201	201	1992.29	3224.17	13.75	27394.0	44332.3
CAR/D	5.95	11.73	8.82	11.13	202	237	220	1249.12	2787.21	12.60	15738.9	35118.8
B. RAJASTHAN (RAJ)												
dTRUK	128.01	162.55	145.28	150.42	243	324	283	31070.02	52615.66	3.29	102249.3	173154.5
dTRUK/B	116.85	147.73	132.29	137.12	241	323	282	28187.45	47770.21	3.26	91885.5	155721.5
dTRUK/C	133.86	165.75	149.80	157.05	243	323	283	32526.20	53634.64	3.22	104863.7	172916.8
dTRUK/D	124.37	163.92	144.15	145.58	243	324	283	30199.34	53085.80	3.38	102067.8	179419.4
dTRUK/E	131.33	162.57	146.95	150.23	243	324	283	31912.21	52669.49	3.28	104672.0	172755.9
dLT	34.20	49.00	41.60	44.55	243	324	284	8321.81	15896.97	6.95	57796.91	110408.61
dLT/B	24.52	37.23	30.08	31.68	243	319	281	5968.19	11943.51	8.21	48775.42	97662.90
dLT/C	31.97	46.29	39.13	41.34	243	323	283	7780.26	14970.62	7.28	56012.39	107915.41
dLT/D	27.24	40.67	33.95	36.57	243	322	283	6628.11	13104.02	7.81	51071.03	101214.79
dLT/E	27.17	40.11	33.64	33.82	243	319	282	6612.02	12914.94	8.04	52512.47	102713.67
dJEEP	16.29	26.40	21.35	22.38	243	324	284	3964.00	8566.30	9.91	39284.3	84894.2
dJEEP/B	15.00	25.00	20.00	20.75	243	324	284	3650.00	8111.11	10.00	36500.0	81111.1
dJEEP/C	17.04	27.21	22.13	23.31	243	324	284	4147.06	8827.97	9.86	40905.1	87075.9
dJEEP/D	15.41	25.47	20.44	21.54	243	324	284	3750.84	8263.53	9.96	37364.1	82317.5
dJEEP/E	15.00	25.00	20.00	19.25	243	324	284	3650.00	8111.11	10.00	36500.0	81111.1

Table 3.18 Contd.

	Fuel use/day (litre)----				Number of days of use/year --------			Fuel cons/year			Ann. Dist/ Vehicle (km)	
	low	high	ave	given	low	high	ave	low	high	milage	low	high
C. NAINITAL (NAN)												
dLT	42.12	59.71	50.92	59.05	207	239	223	8413.81	14025.99	6.18	51084.41	84941.29
dLT/B	38.08	55.93	47.01	55.93	197	249	223	6975.08	13114.53	6.21	41618.01	78056.11
dLT/C	42.00	58.88	50.44	58.38	210	238	224	8582.76	13972.17	6.06	51889.01	84397.80
dLT/D	44.03	62.25	53.14	61.13	207	235	221	8865.78	14483.04	6.10	53974.46	88023.09
p3W	3.69	7.24	5.46	6.91	224	293	259	821.67	2111.44	18.99	15604.3	40098.1
p3W/B	2.61	5.22	3.91	5.22	241	317	279	628.17	1657.49	20.00	12563.4	33149.8
p3W/C	3.63	7.25	5.43	6.75	228	289	258	830.04	2109.93	18.37	15250.0	38764.9
p3W/D	4.49	8.56	6.52	8.26	209	282	245	936.64	2411.96	19.23	18010.3	46378.6
D. OTHER UP (UPP)												
dTRUK	157.55	200.04	178.80	177.87	167	350	259	27039.53	69867.97	2.50	67510.4	174441.5
dTRUK/B	159.35	199.52	179.43	181.84	199	339	269	32432.10	67555.38	2.71	87763.0	182808.5
dTRUK/C	122.57	165.31	145.49	146.87	118	340	231	14797.76	59399.16	2.27	33590.9	134836.1
dTRUK/D	166.06	208.39	187 22	185.30	170	349	260	28700 69	72688.02	2.51	72123.7	182662.2
dTRUK/E	142.85	187.86	165.36	160.82	135	361	248	19396.95	67751.86	2.29	44347.3	154901.2
dLT	62.09	78 71	70 90	73.33	257	333	295	15747.51	26442 60	6 39	94568.87	159888.63
dLT/B	65.71	83.07	74.39	77.03	251	329	290	16444.02	27342.90	6.43	99288.81	166090.66
dLT/C	42.03	58.07	50.05	50.43	270	342	306	11482.46	20024.96	6.70	68455.92	121010.91
dLT/D	63.19	81.66	72.42	75.14	261	335	298	16170.64	27219.62	6.24	94135.85	159905.81
dLT/E	41.67	57.90	49.79	50.67	277	347	312	10906 55	19648.17	6.77	72746.26	131021.33
dJEEP	21.52	31.96	26.74	27.27	247	327	287	5292.51	10434.00	9.88	52283.6	103075.3
dJEEP/B	21.78	31.81	26.80	26.93	245	326	285	5335.91	10354 27	9 98	53243.1	103317.7
dJEEP/C	21.94	32.22	27.08	27.94	245	326	285	5380.37	10493.27	9.75	52458.6	102309.4
dJEEP/D	21 24	32.01	26.63	27.33	248	328	288	5243.91	10472.85	9.84	51615.1	103082.7
d3W	20.61	27.06	23.83	23.80	283	351	317	5840.52	9500.88	15.20	88775.9	144413.3
d3W/B	20.63	27.01	23.82	24.13	283	351	317	5845.53	9485.53	15.25	89148.8	144654.3
d3W/C	12.50	18.75	15.63	15.00	283	351	317	3542.19	6583.86	16.00	56675.1	105341.8
d3W/D	28.57	35.71	32.14	30.00	283	351	317	8096.44	12540.69	14.00	113350.2	175569.6
p3W	6.95	12.34	9.65	8.89	283	351	317	1966.15	4350.49	18.53	36423.4	80594.0
p3W/B	4.85	8.80	6.82	6.95	261	336	298	1264.34	2969.38	20.45	25855.8	60723.9
p3W/C	4.84	9.68	7.26	5.91	290	356	323	1427.10	3473.65	18.47	26356 8	64154.0
p3W/D	9 53	16.08	12.80	12.02	292	357	234	2718.37	5703.53	17 35	47160.6	98949.6
p3W/E	5.59	11.17	8.38	6.05	304	365	335	1699.47	4078.73	17.90	30420.5	73009.3
E. DELHI/NEW DELHI (DEL)												
dTRUK	75.31	102.01	88.61	92.44	266	338	302	20744.56	35049.22	3.52	72962.5	123274.7
dLT	16.89	26.42	21.60	23.42	266	338	302	4627.20	9008.09	8 48	36367.90	72309.98
p3W	3.05	6.76	4.85	5.13	257	332	294	793.38	2249.65	16.34	12962.8	35756.3

Table 3.19 : Freight Transport -- Fuel Consumption vs. Vintage for Trucks (Delhi/New Delhi)

	No. of	<---------------milage (km/litre) for the following vintage--------------------->								
	vehicles	<1 yr	1-2 yrs	2-3 yrs	3-5 yrs	5-7 yrs	7-10 yrs	10-15 yrs	15-20 yrs	>20 yrs
Tata	62	3.38	3.45	3.40	3.30	3.38	3.33	2.80	3.25	3.5
Others	18	4.00	-	4.50	4.92	6.00	3.25	-	3.76	3.1

Table 3.20 Freight Transport -- Fuel Consumption vs. Vintage for Trucks (Haryana)

	No. of	<---------------milage (km/litre) for the following vintage---------------------								
	vehicles	<1 yr	1-2 yrs	2-3 yrs	3-5 yrs	5-7 yrs	7-10 yrs	10-15 yrs	15-20 yrs	>20 yr
A LEYLAND	42	-	3.88	3.39	3.85	3.55	4.00	-	-	-
OTHERS	11	-	6.50	1.00	4.25	4.00	-	-	4.00	-
TATA	111	6.69	6.75	5.09	6.46	4.89	3.50	3.50	-	-

Table 3.21 : Freight Transport — Frequency Distribution of Distance Travelled Empty

	% Distance Travelled Empty						
	<10	10-20	20-30	30-40	40-50	>50	Total
A. Haryana (HAR)							
Trucks (HSD)	143	350	283	148	139	16	1079
LCVs/Tempos (HSD)	289	119	92	88	138	2	728
Jeeps (HSD)	22	0	1	0	1	0	24
Jeeps (MS)	13	0	0	0	0	0	13
3-wheelers (HSD)	5	2	1	2	4	0	14
3-wheelers (MS)	32	35	14	4	23	1	109
Cars (MS)	2	0	0	0	0	0	2
Total	506	506	391	242	305	19	1969
B. Rajasthan (RAJ)							
Trucks (HSD)	48	57	13	8	2	0	128
LCVs/Tempos (HSD)	0	17	5	8	3	0	33
Jeeps (HSD)	4	5	6	3	2	0	20
Total	52	79	24	19	7	0	181
C. Nainital (NAN)							
LCVs/Tempos (HSD)	141	78	1	0	0	0	220
3-wheelers (MS)	2	1	0	0	0	0	3
Total	143	79	1	0	0	0	223
D. Other UP (UPP)							
Trucks (HSD)	390	119	30	41	95	0	675
LCVs/Tempos (HSD)	15	45	22	12	1	0	95
Jeeps (HSD)	2	4	12	7	1	0	26
3-wheelers (HSD)	0	0	0	0	0	0	0
3-wheelers (MS)	12	11	8	5	2	0	38
Total	419	179	72	65	99	0	834
E. Delhi/New Delhi (DEL)							
Trucks (HSD)	9	8	7	16	13	2	55
LCVs/Tempos (HSD)	2	5	2	6	13	0	28
3-wheelers (MS)	3	4	1	3	4	1	16
Total	14	17	10	25	30	3	99

Table 3.22 : Freight Transport -- Frequency Distribution of Trucks Carrying Various Freight Items

	HAR	RAJ	NAN	UPP	DEL
Agricultural yield	742	20	181	103	45
Fertilizer	44	0	0	0	0
Fruits/Vegetables/ Grocery	108	68	55	0	0
Consumer goods	65	0	4	51	3
Machinery/Engineering goods	168	2	25	1	7
Building Material	191	25	45	40	21
Coal	10	0	0	114	0
Wood	0	0	60	2	9
Textiles	7	9	0	0	0
Anything	535	54	0	34	23
Others	32	21	0	7	0

IV. AGRICULTURE

4.1 Introduction

Direct commercial energy inputs, in the form of HSD and electricity, are required for a variety of agricultural operations, the most important of which are land preparation, sowing and irrigation. Threshing and harvesting are some of the other agricultural operations for which direct inputs of commercial energy are required.

Although the only direct commercial energy input for land preparation is in the form of HSD through the use of tractors* (the other options being draught animal power), both electricity and HSD are used for irrigation.# In addition, draught animal power may also be used for irrigation. However, in areas where electric or/and diesel pumpsets are used, the water drawal rate is often high and the groundwater recharge is not fast enough, which leads to a fall in the water table thus making it difficult to use animal power pumping systems. Therefore, the general practice in rural areas which are electrified is that in the event of power supply restrictions, the farmers use diesel pumpsets.

In the field survey, HSD utilization data for both tractors and diesel pumpsets are collected. Clearly, the data for tractors includes tractor use for land preparation, sowing and other agricultural operations, as well as for transportation. These data and other items of information collected through the field survey are analyzed and presented below.

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* The term "tractor" is used in the generic sense, and includes power tillers also.

# Electricity supply may be through the grid, or from decentralized renewable energy devices.

Owing to the fact that farmers in general cannot give definitive and precise responses regarding their HSD consumption, the approach adopted is to collect data on HSD purchases, as well as HSD use in tractors and diesel pumpsets, and to match the two. If the purchase and utilization information for a particular farmer are fairly consistent with each other*, they are included in the baseline data for estimating HSD requirements; else they are not. However, even if the HSD purchase and consumption figures given by a farmer are not internally consistent, the other information (for instance, on land area prepared for cultivation, land area irrigated etc.) are still considered for further analysis -- for it is very likely that farmers are in a good position to know of such things precisely. It may be noted that such items of information, though not directly on HSD use, are still very useful for making HSD sales projections.

4.2 Sample Size

As for passenger and freight transport consumers, the approach here is also to interview farmers who come to the selected ROs to purchase fuel (in this case, HSD). The number of farmers who rely on HSD is much smaller than road transport vehicles; so is the number of farmers covered in the survey.

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* If the two ways of estimating the seasonal requirements of HSD are within +/- 33% of each other, they are considered to be fairly consistent.

Table 4.1 gives the total number of agricultural consumers of HSD covered in the field survey, as well as the number of such consumers who gave fairly consistent responses regarding their HSD consumption levels and purchases. It may be noted from Table 4.1 that only 26% of the farmers were able to give fairly reliable and consistent estimates of HSD consumption and purchase.

Table 4.1 also shows that no agricultural consumers are covered in the Delhi/New Delhi area. It is important to note however, that it is not that we did not wish to include agricultural consumers in the survey in Delhi/New Delhi, but only that no such consumers were encountered at the selected ROs during the field survey.# However, some estimates of HSD consumption by farmers in the vicinity of Delhi/New Delhi may be made.*

4.3 Population of Tractors and Diesel Pumpsets

All farms are not mechanized fully; some of the small and marginal farmers in fact may not use tractors or other mechanical devices for any agricultural operations at all. Further, certain farmers may have electric pumpsets only but no diesel using equipment. This is one of the reasons that all farmers do not

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During the course of the field survey, the TERI team interviewed some farmers from neighbouring areas of Gurgaon district, who stated that they were not purchasing HSD much in 1990, as the rainfall had been good and well spread over the entire agricultural season.

* The TERI team also visited village Dhanawas (in the outskirts of New Delhi) in Gurgaon district of Haryana. The farmers there revealed that they sometimes preferred to purchase HSD from an RO in New Delhi (which is much further than the nearest one in Gurgaon) for they were assured of better quality of HSD.

visit ROs for purchasing HSD -- and therefore could not be included in the field survey.

Table 4.2 shows the number of farmers covered in the field survey who use tractors and/or diesel pumpsets. From Table 4.2, it may be observed that the level of farm mechanization is generally higher in Haryana than Rajasthan and UP. About 64% (974 out of 1519) farmers in Haryana had both diesel pumpsets and tractors; in addition to the fact that Haryana is 100% electrified which means that nearly all 1519 farmers would be having electric pumpsets also. In comparison, only 3.8% (21 out of 552) of farmers in Rajasthan, and 16.9% (106 out 628) farmers in Eastern UP (Mirzapur and Varanasi districts) had both tractors and diesel pumpsets. It may be noted that in Nainital district, 220 of the 239 farmers covered in the survey had both tractors and diesel pumpsets. However, this high level of mechanization may be representative of selected areas in Western UP only.

Several farmers who own tractors and diesel pumpsets lend them to other farmers in the same village. Table 4.3 shows the number of farmers who lend their diesel using equipment to other farmers. Most of the respondents stated that they lend their tractors and diesel pumpsets routinely. In fact, this signifies one of the greatest benefits of diesel pumpsets over electric ones -- the possibility of moving them from one location/field to another.

From the discussion above, it is evident that if the number of tractors and diesel pumpsets were to increase in a village, their utilization rates would come down. So would the land area that is served per tractor and per pumpset. This aspect is a very important consideration in making HSD consumption forecasts. Table 4.4 gives the average cultivated area over which a tractor and a diesel pumpset are used at present.

In the ultimate analysis, the number of pumpsets which can be installed will depend on the groundwater potential and the area served by one pumpset; and the number of tractors in use will be limited by the number of landholdings. Against this background, it becomes relevant to review the data on number and average size of landholdings in the various Northern Region states. These data are presented in Table 4.5; and show that in all states other than Punjab, the number of landholdings increased from 1976/77 to 1980/81, and their average area (ha) reduced. This trend is known to continue to date, although no firm data are available.

Finally, Table 4.6 presents the latest available estimates of population of tractors and diesel pumpsets in use in the various states/UTs of the Northern Region. It is important to note that over 1.5 million diesel pumpsets are in UP alone. This reflects in part, the fact that UP is not fully electrified as yet. However, over 360,000 diesel pumpsets are in Punjab also -- a state which is fully electrified. This is a reflection of the fact that power supplies in Punjab are not reliable; and that diesel pumpsets are needed as back-up for lift-irrigation. The same is true for Haryana also, as well as the electrified parts of

Himachal Pradesh, Jammu & Kashmir, Rajasthan and Uttar Pradesh.

4.4 HSD Use (Per Cropping Season)

The HSD consumption rate (litres/hour) depends on the horsepower (hp) rating of the tractor and diesel pumpsets. However, no farmer was able to give the hp rating of his farm equipment during the field survey or even the model number/make of his tractor or diesel pumpset. Consequently, the survey data can only be analyzed on an aggregrate basis for all tractors and all diesel pumpsets covered -- disaggregation by hp rating is not possible.

Nevertheless, it is still possible to draw some meaningful conclusions regarding HSD consumption levels in one agricultural season. As explained in section 4.1, the HSD utilization pattern was verified for consistency with HSD purchases. This was done over a period of one cropping seasons, which lasts for about 4 months (120 days). In particular, the following three HSD uses are considered :

(i) in tractors, for agricultural purposes;
(ii) in tractors, for transportation; and
(iii) in diesel pumpsets, for groundwater irrigation.

On the basis of information gathered from the survey, the following relationships are developed :

$$TA = (AC).(HA).(HSDRA)$$

$$TT = (DT).(HSDRT).(4/3)$$

$$DP = \sum_{i=1} (AC_i/AI).(120/I_i).(HSDDP)$$

where TA = HSD used by a tractor for agricultural purposes in one cropping season (litres);

AC = Total area under cultivation, over which the tractor is used for land preparation and sowing (ha);

HA = No. of hours the tractor is used per hectare for land preparation and other agricultural purposes (hours/ha);

HSDRA = HSD consumption rate (litres/hour)

TT = HSD used by a tractor for transportation in one cropping season (litres);

DT = Number of days in the past 3 months that the tractor has been used for transportation/travel;

HSDRT = average HSD usage per day on a day when tractor is used for transportation (litres/day);

(4/3) = a factor to derive the HSD consumption for transportation in 4 months from 3 months;

DP = HSD consumption per diesel pumpset (litres);

ACi = Area under cultivation of crop "i" (ha);

AI = Area irrigated per day by a diesel pumpset (ha/day);

Ii = Number of days after which crop "i" is irrigated; and

HSDDP = Average HSD consumption in a pumpset in one day of operation (litres/day).

These sets of calculations are made for each agricultural consumer and compared with the purchase data :

PUR = (HSDP).(120/DAYS)

where PUR = total HSD purchased in one cropping season of 120 days (litres);

HSDP = HSD purchased each time (litres); and

DAYS = number of days that HSD purchased each time usually lasts.

Clearly then, if PUR and TA + TT + DP are within 33% of each other*, they are considered consistent for analytical purposes, and the HSD consumption rates for various applications for those particular respondents are considered in deriving average HSD consumption levels per season. These data are presented in Table 4.7. Table 4.7 also gives data on HSD purchases as gathered from the field survey. It may be noted that although a difference of +/- 33% between the two (purchase and consumption) are allowed for each particular consumer, the overall averages match fairly well. In fact, the purchase levels seem to be (on the whole) reported to be marginally higher than consumption levels -- the difference is maximum in Rajasthan (10.36%) and the least in Haryana (1.77%).

Based on data in Table 4.7 and other data from the survey, the number of hours of tractor and diesel pumpset use per season, for various applications are computed and presented in Table 4.8. It is important to realize that it is absolutely essential to distinguish between tractor use for agricultural purposes and for transportation. This is evident from Table 4.9, which shows that the HSD consumption rate per hour of tractor use for transportation is 80-90% of that for agricultural purposes.

As the present field survey was conducted in 1990, a year when the rainfall was very good, this field survey only gives an idea of HSD requirements in a good rainfall year. TERI had however, conducted another field survey in 1987 -- a drought year -- in Haryana (Sampla block; Rohtak district)*, which shows that the HSD consumption for groundwater pumping by diesel pumpsets is of the order of 106.5 litres/hectare -- compared to 16.875 litres/hectare estimated from the present survey. The fact that pumpsets use more than 6 times as much HSD in drought years, is a reflection of the fact that power generation is less (in drought years, which reduces power supplies to agricultural consumers, and thus leads to a greater use of the back-up source of irrigation (i.e. diesel pumpsets) at the same time when the water table has fallen below normal levels.

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* Despite this rather large difference between purchase and consumption, less than 30% of the farmers can be considered consistent in their responses (see Table 4.1). This indicates the generally low level of reliability that can be attributed to responses obtained from agricultural consumers.

In the absence of similar data for other states, this ratio (106.5 : 16.875) is used to estimate HSD requirement per diesel pumpset. Table 4.10 presents the HSD requirement for tractors and diesel pumpsets in normal/good rainfall cropping seasons and in drought conditions. It may be noted that the HSD use per tractor will not depend on rainfall conditions.#

Our discussion with experts from the IARI indicated that the diesel pumpset utilization and HSD consumption levels are likely to be 25% more in Rajasthan compared to those in Haryana; and in Eastern UP, about 25% less. This forms the basis of the estimates of HSD requirements per diesel pumpsets for the two areas given in Table 4.10.

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* Refer to TERI "Application of a Rural Energy Model in Energy Planning : Analysis of 20 villages Survey Data (Part B)", New Delhi, September 1989.

# To the extent, farmers use tractors specifically for transportation for visiting ROs to purchase HSD for their diesel pumpsets (as evident from the field survey), the implicit assumption here is that the farmers will purchase more HSD on each visit.

In reality of course, the exact amount of groundwater irrigation requirements depend on several factors such as soil type, extent of rainfall, type of crop etc. However, for any particular location, factors such as soil type, water table, rainfall etc. will be the same no matter what crop is cultivated. Therefore, for that particular location, the extent of groundwater irrigation requirements would depend on the crop; and in order to project the level of irrigation water requirements (and hence HSD requirements for diesel pumpsets) it would normally be essential to project the sown area by type of crop.

However, as seen from Table 4.11, the water requirements do not vary significantly among non-rice crops. For rice, the water requirement is 180 cu.metres/ha/day. Although the water requirements for rice are certainly higher, in areas of Haryana and Punjab where rice cultivation has become increasingly popular in recent years, the general practice is to cultivate rice over a smaller land area, so that part of the farmer's landholding remains fallow, and the water requirements of the reduced rice growing area is approximately same as for a non-rice crop grown over the entire area at the farmer's disposal. That is to say, the water availability situation limits the area for rice cultivation.

Against this background, it may be assumed that the water requirements (and hence HSD requirements for irrigation) will vary within a fairly narrow range in any given location, no matter what crop is cultivated there. Therefore, the norms given in Table 4.11 may be used as a basis for projecting HSD requirements.

Table 4.1 : Agriculture -- Sample Size

	Total No. of Agricultural Consumers Covered in Field Survey	No. of Consumers who gave consistent responses on HSD purchase and consumption
HAR	1519	538
RAJ	552	68
NAN	239	82
UPP	628	76
DEL	-	-
Total	2938	764

Table 4.2 : Agriculture -- Number of Consumers Covered in the Field Using Tractors or/and Diesel Pumpsets

	No. of Consumers Covered in the field survey and Using			No. of Consumers who gave Consistent Responses on HSD purchase and Consumption, and Using		
	Tractors Only	Diesel Pumpsets Only	Both	Tractors Only	Diesel Pumpsets Only	Both
HAR	1405	1083	974	514	424	400
RAJ	552	21	21	65	0	0
NAN	224	235	220	0	2	80
UPP	503	227	106	76	0	0
DEL	-	-	-	-	-	-

Table 4.3 : Agriculture -- Number of Farmers Who Lend Tractors or Diesel Pumpsets

	No. of Farmers Surveyed Who Lend	
	Tractors	Diesel Pumpsets
HAR	710	475
RAJ	12	9
NAN	73	86
UPP	135	221

Table 4.4 : Agriculture -- Cultivated Area over which One Tractor and Diesel Pumpset are Used (hectares)

	Tractors	Diesel Pumpsets
HAR	8.61	7.0
RAJ	22.26	8.9
NAN	1.55	2.2
UPP	18.33	2.8

Table 4.5. : Agriculture -- Number and Ave. Size of Landholdings

	No. of landholdings ('000)		Average Area (ha)	
	1976/77	1980/81	1976/77	1980/81
HAR	998.7	1011.6	3.58	3.52
HP	621.4	638.1	1.625	1.535
JK	970.9	1035.4	1.074	0.994
PUN	1503.8	1027.1	2.743	3.788
RAJ	4365.4	4486.9	4.65	4.442
UP	16971.2	17817.3	1.052	1.009

Source : Fertilizer Association of India (FAI), Fertilize Statistics, various issues, New Delhi.

Table 4.6 : Agriculture -- Population of Tractors and Diesel Pumpsets

	No. of Tractors Registered		No. of Diesel Pumpsets	
	(As on 31 March 1989)	(As on 31 March 1990)	(As on 31 March 1989)	(As on 31 March 1990)
HAR	87,000	96,225	117,280	124,551
HP	2,550	2,670	883	906
JK	2,860	3,050	631	647
PUN	252,300	261,160	349,504	360,722
RAJ	60,500	66,440	86,949	91,305
UP	205,200	220,580	1,227,520	1,281,898
CHD	1,400	1,490	-	-
DEL	-	-	-	-
Northern Reg.	611,810	651,615	1,782,767	1,860,029

Source : (i) Automative Component Manufacturers Association of India (ACMA); "Automotive Industry of India : Facts and Figures 1990," New Delhi; and (ii) Ministry of Agriculture, "Indian Agriculture in Brief", Directorate of Economics and Statistics, Govt. of India, New Delhi, various issues.

Table 4.7 : Agriculture -- HSD Consumption per Season

	HSD Purchases (litre)	HSD Consumption from Consumption Data (litre)				
		Tractor for Agr	Tractor for Transp	Diesel Pumpset	Total	Difference(%)
HAR	786.96	528.64	126.19	118.2	773.03	-1.77
RAJ	717.31	384.09	258.89	0	642.98	-10.36
NAN	654.33	242.53	94.68	277.6	614.81	-6.04
UPP	722.54	359.34	329.65	0	688.99	-4.64

Table 4.8 : Agriculture -- No. of Hours of Tractor and Diesel Pumpset Use per Season

	Tractor		Diesel Pumpset
	For Agr	For Transp	
HAR	126.22	32.14	60.20
RAJ	386.13	258.37	N.A.
NAN	230.02	122.24	294.68
UPP	102.51	136.39	N.A.

Table 4.9 : Agriculture -- Ratio of HSD Consumption in Tractors for Transportation vs Agricultural Purposes

HAR	0.915
RAJ	0.848
NAN	0.810
UPP	0.816

Table 4.10 : Agriculture -- HSD Use Norms per Cropping Season

	Diesel Pumpsets (litres/ha)		Tractor	
	Good/Normal Rainfall	Drought Conditions	for Agricultural Purposes (litre/ha)	for Transportation (litre/season)
HAR	16.875	106.50	61.40	126.19
RAJ	21.094	133.13	17.25	258.89
NAN	125.625	792.80	156.25	94.68
UPP	12.656	79.88	19.60	329.65

Table 4.11 : Seasonal Water Requirements of Non-Rice Crops (cubic metre per hectare of sown area)*

	Kharif (July-Oct)	Rabi (Nov.-Mar)	Hot Weather (March-June)
Sub-Tropical Zone (Hot, Arid)#	5000-6000	4000-5000	8000-9000
Tropical Zone (Hot, Arid)●	9000-10000	8000-9000	12000-14000

* Assuming 70% irrigation efficiency, which is the ratio between water available to crop, and that delivered by the pump.

# Includes Punjab, Haryana and UP.

● Includes Rajasthan.

Source : C, Dakshinamurti, Water Resources of India and their Utilization in Agriculture, Water Technology Centre, Indian Agricultural Research Institute, New Delhi, 1973.

V. INDUSTRIAL/COMMERCIAL SECTORS

5.1 Introduction

Large industrial and commercial establishments use HSD for a variety of purposes. For most thermal energy requirements for which HSD is used, it can often be used interchangeably with furnace oil (FO) or light diesel oil (LDO); in addition, some HSD may also be used for power generation. Many of such large industrial and commercial units however, purchase HSD directly from the oil industry depots and installations. Their HSD use is therefore not of direct relevance in the context of HSD sales through retail.

On the other hand, several industrial and commercial establishments use HSD primarily for power generation -- owing to the unreliability of power supplies. Such establishments do not need HSD for their normal processes and other operations, but only use HSD-fired diesel generator (dg) sets as a back-up source for power generation. The general power supply situation in the Northern Region varies from season to season; so does the demand (and sales) of HSD for power generation.

It is to be expected that HSD use in a particular establishment will relate to two aspects:

(i) the size of the establishment -- the bigger the industrial or commercial unit, the larger the dg set capacity it will need to generate power in the event of restrictions from the utility grid; and

(ii) the number of shifts that a particular industry operates -- clearly, a single shift industry which works only 8 hours a day will not run dg sets at night; while a three-shift industry would do so if there were power cuts during the night shift. As the frequency and duration of power cuts is likely to be more during times of the system peak (normally 6:00 to 10:00 AM; and 6:00 to 10:00 PM), HSD use in a three-shift industry of a particular size will be less than thrice the HSD use in a single-shift industry of the same size. However, as three-shifts industries are generally much larger than single shift and two shift industries, their average HSD consumption is likely to be correspondingly larger.

Several commercial establishments (shops, restaurants, hotels etc.) also invest in standby sources of power generation. These may be dg sets, although smaller establishments often rely on kerosene based generators.

5.2 Sample Size

As for passenger/freight transport and agricultural consumers, only those industrial and commercial sector consumers who visited selected ROs for purchasing HSD are covered in the field survey. The purpose of the field survey is to find out the capacity or kVA rating of dg sets installed, the extent of their utilization (i.e. the amount of kWh of energy they generate), and the quantity of HSD used for this purpose.

It is clear from the above discussion that a fair degree of "technical" knowledge is required of the respondent in order to answer the questions posed by the field investigator. However, the person who is normally sent to buy HSD from a RO is often a very junior officer/employee in the organization who has little (if any) knowledge of dg sets and their operations. It is therefore to be expected that the reliability of responses received from industrial and commercial consumers will be rather low.

Like the survey of agricultural consumers, the approach here is to estimate the total HSD purchased over a certain time period and compare it to the total consumption during the same period -- or equivalently, to compare the stated usage of dg sets to that derived from HSD purchases (the consumption of HSD can be estimated from the capacity and utilization of dg sets).

Table 5.1 shows the total number of industrial/commercial consumers of HSD covered in the field survey; as well as the number of consumers who were able to give consistent responses. It may be observed from Table 5.1 that internally consistent responses could be obtained only from 135 consumers in Ambala and Karnal districts of Haryana, and 10 consumers in Nainital district of UP. Of the 866 consumers covered in the survey, only 145 (16.2%) gave consistent responses.

In fact, no consumers in Mirzapur, Varanasi, Ganganagar and Delhi/New Delhi were able to give any data on dg set use. Clearly, information on only the HSD purchase data will shed very little light on the determinants of HSD consumption and sales.

The fact that a survey of this type of industrial and commercial consumers may not lead to much understanding of HSD use was brought to the attention of the oil industry by September 1990.*

Owing to the problems associated with the present survey, there is no choice but to rely on a field survey of 500 industrial/commercial establishments in Haryana, Rajasthan and UP conducted by TERI in 1986.# The approach in this earlier field survey was to visit selected industrial/commercial establishments and to collect details of HSD purchase, HSD consumption for power generation, number of hours of dg set use, actual generation obtained from dg sets etc. on a month-by-month basis. TERI investigators often made two to three visits to each selected establishment and collected the required data from various officials responsible for purchase, power supply, production etc. The findings of this field survey can therefore be considered much more reliable, and are also summarized below.

5.3 Installed Capacity (1990 Survey)

The combined installed dg set capacity of all industrial/ commercial consumers covered in Haryana was 6835.4 kVA, of which, consumers with 1216.35 kVA capacity gave internally consistent responses (exactly how the responses are found to be consistent is explained in section 5.4). The corresponding numbers for industrial/commercial consumers in Nainital district were 332 kVA and 43 kVA respectively. As already mentioned in section 5.2, no consumers surveyed in Ganganagar, Mirzapur and Varanasi districts, as well as in Delhi/New Delhi could give consistent responses. The combined installed dg set capacities of consumers in Ganganagar was 1330 KVA, in Mirzapur and Varanasi districts was 484 kVA, and in Delhi/New Delhi was 78 kVA.

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* Presentation of the interim report to the oil industry on September 21, 1990 in Bombay.

# TERI, "Alternative Generation Expansion Strategies for the Northern Region", New Delhi, October 1987.

Table 5.2 gives the average dg set capacity installed by consumers covered in the survey. It may be noted from Tables 5.1 and 5.2, that although the single-shift industries accounted for more than 72% of the total sample in Haryana, they accounted for 3109 kVA or 45% captive dg set capacity. This conforms well to the basic issues highlighted in section 5.1 -- that single-shift industries tend to be smaller than 2- and 3-shift industries, and therefore need a smaller dg set capacity to meet their power requirements. A similar conclusion may be drawn also from the average installed capacities of dg sets for single and two-shift industries in Nainital (Table 5.2).

A variety of types of industries and other establishments were covered in the field survey. In particular, in Haryana, industrial units manufacturing tractors and other agricultural implements, other engineering industrial units (manufacturing auto spares, ball bearings, nuts and bolts, watches, aluminium•utensils etc.), and chemical industries were covered as well as sugar, cardboard, mirror, lime stone powder etc. processing units. In

Nainital district, establishments manufacturing/processing edible oils and charcoal were covered, in addition to sawmills and engineering industries. In Mirzapur, flour and oil mills were covered largely in the survey; while in Varanasi, a variety of industrial units in addition to cinema houses were covered. Very few respondents in Ganganagar in fact identified the type of industry they were purchasing HSD for; and in Delhi/New Delhi, a large number of engineering industrial units were included in the survey.

5.4 HSD Purchase and Use (1990 Survey)

While information on HSD purchase was available for all 866 establishments covered in the survey, corresponding information on HSD use was available from only about 500 respondents. Of these, only 145 were able to give information that is consistent with the HSD purchase data.

Table 5.3 gives the average quantity of HSD purchased by establishments covered in the field survey. It may be noted that the average quantity of HSD purchased in the last 3 months by establishments for which information on HSD purchase and consumption is consistent, is significantly different from that for which the same information is not consistent. This highlights the importance of carrying out a consistent check on the data gathered from the survey.

The basis for consistency may be explained better with the help of Table 5.4. Table 5.4 shows the average number of hours of dg set use as given by the respondent. In fact, as already pointed out in section 5.3, each establishment may have more than one dg set. In the field survey, information on rated capacity and hours of use was sought separately for each dg set installed. The weighted average number of hours of dg set use in the establishment is obtained by weighting the hours of use of each dg set (as stated in the response) by the rated capacity of the particular dg set. More clearly,

$$HAV = {}_{i}(CAPi).(Hi)/\ {}_{i}(CAPi)$$

where HAV = average hours of dg set use per day;
CAPi = capacity of dg set "i" (kVA); and
Hi = number of hours per day that dg set i is used.

From the HSD purchase data (for the last three months), the number of hours of dg set use per day is estimated as follows :

$$HAVP = HSDPUR/3/DAYS/(\quad CAPi*0.8*0.24)$$

where HAVP = average hours of dg set use per day estimated from HSD purchase data;
HSDPUR = quantity of HSD purchased in last 3-months (litres)
DAYS = number of days per month that the industrial/ commercial establishment works (say 25 days/month);
CAPi = capacity of dg set "i" (kVA);
0.8 = a factor to convert kVA to kW (normal average power factor -- fraction);
0.24 = HSD use norm in dg sets (lit/kWh).

HAV and HAVP are computed for each industrial/commercial establishment covered in the field survey, and compared to check for consistency with each other. It may be noted that the implicit assumption in computing HAVP is that whenever dg sets are used, they are used to generate to their rated capacity. This need not be true in practice -- the 1986 survey clearly showed that dg sets may in fact be used to generate only about 40% to 60% of their rated output.* Therefore, if HAVP falls in the range of -40% + 10% of HAV, the two are considered to be mutually consistent.

Table 5.4 shows the values of HAVP and HAV averaged over all responses (in each district) that are considered consistent. It may be seen that the average number of hours that one-shift industries use dg sets in Haryana is rather high. This reflects the fact that several such industries in fact run for 12-14 hours a day (i.e. 1.5 shifts) but generally go by the name of single-shift industries because the same set of employees (labour) works throughout the 12-14 hours per day. That the average number of hours of dg set use in two and three shifts is relatively less is due largely to the fact that such establishments are in a better position to schedule their work in such a manner, that during times when peak load restrictions are imposed by the Haryana State Electricity Board (HSEB), they do not need much power. Furthermore, such establishments may also have invested more in standby do set capacity (to hedge against the eventuality that one dg set is down for maintenance or over-hauling), which tends to reduce the overall average number of hours that a dg set is used per day.

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* This is again a reflection of the fact that private entrepreneurs anticipate that the poor power supply situation will continue well into the future -- by which time they would have expanded their operations as well. This phenomena also indicates that there is a considerable amount of over-investment in power generation capacity in the country.

The most important finding of the survey is brought out in Table 5.3, particularly for Haryana -- that HSD consumption in single shift industries tends to be less than in two-shift industries, which in turn, tends to be less than in three-shift industries.

5.5 Seasonal Variations in HSD Purchases (1990 Survey)

From the survey, some information is also gained on the seasonal variations in dg set use -- and HSD requirements for standby/ captive power generation. However, it is of a very general nature.

For instance, the respondents in Delhi/New Delhi generally felt that the HSD requirements are maximum during the peak winter months (January) and peak summer months (June-July). However, in Varanasi, the response generally indicated that the HSD requirements were maximum in the summer months and least in winter months. The pattern in Haryana was found to be quite similar to that in Delhi/New Delhi. Little information was available from respondents in Ganganagar and Nainital districts.

5.6 Installed Capacity, Generation and HSD Use (1986 Survey)

Five hundred industrial and commercial establishments were surveyed; about 99% of which were industries. Detailed information on the use of standby/captive generation facilities in 1985 was collected. A stratified sampling technique was used to determine the sample size in Haryana, Rajasthan and UP and in three capacity range categories. The three capacity range categories are : (i) <100 kVA (Category 1); (ii) 101-999 kVA (Category II); (iii) > = 1000 kVA (Category III). These categories correspond to the capacity of the biggest standby generator approved by the concerned utility for captive use in a particular establishment.

Complete data were obtained from 357 establishments. These data are summarized in Table 5.5. Table 5.5 clearly shows that the capacity utilization (in terms of kWh/kW of installed capacity) of dg sets is maximum in Category III industries (which are likely to be large and having three shifts) and least in Category I industries (which are mostly small single-shift industries). The only exception is that of Haryana, where the capacity factor (utilization factor) of dg sets in Category II industries is lower than in Category I establishments. However, this situation arises due largely to a sizeable difference in the average loading conditions between establishments of the two categories. That dg sets in Category II establishments in Haryana generate only 43.7% of their rated capacity during times when they are working, clearly suggests that substantial over-capacity exists.

For analytical purposes (of validating the findings of the survey of HSD consumers), the capacity factors given in Table 5.5

form the basis.

Table 5.5 also shows that the HSD consumption norm is a little below 0.24 litres/kWh for all categories of establishments. This forms a basis for estimating HSD sales to industrial/ commercial consumers in 1989/90.

5.7 Seasonal Variations in HSD Use (1986 Survey)

Official records of industrial and commercial establishments covered in the survey, were scanned to gather information on their monthly generation and HSD use patterns.

Figures 5.1, 5.2 and 5.3 show the percentage of generation achieved from dg sets on a month by month basis in Haryana, Rajasthan and UP respectively. It is seen that the generation level is maximum in December in Haryana, in January in Rajasthan and in June in UP. December and January (the most likely months for maximum captive generation in Haryana and Rajasthan respectively) are in the same cropping season (Rabi, late November to March). The major crop in this season is wheat, which is cultivated in large areas of Haryana and Rajasthan. Moreover, in these two states, paddy which is usually sown in June and harvested in November (Kharif season) is not a major crop. However, paddy is cultivated on large tracts of land in UP and has a substantial impact on the total irrigation water requirements.

Therefore in UP, lift irrigation water requirements are maximum in June for pre-sowing irrigation just before the monsoon season begins. Lift irrigation (and hence electricity) requirements for paddy cultivation are substantially reduced in July and August because of monsoon rains. During September, October and November, the hydro reservoirs also provide water for canal irrigation which reduces electricity consumption for lift irrigation. Rice is not cultivated in the other cropping season; therefore, the demand for irrigation water is not as high as during June through November -- this leads to a relatively better power situation, and consequently less dg set use in November through March.

In Haryana and Rajasthan, captive generation is maximum in the wheat growing season of November to March. During this time, power generation as well as availability of water for canal irrigation from hydro reservoirs is low, because water stored in dams during the monsoon season is largely utilized for both these purposes until November.

Figures 5.1, 5.2 and 5.3 also show that the share of annual generation from dg sets in Haryana in May is about 14%; and in UP in April, about 25%. Electricity requirement for lift irrigation is low during these months. However, the hot weather during these months effects the reliability of the utility transmission system and results in an increased use of captive generation facilities. A similar high is observed in Rajasthan in July, but this is because irrigation has to begin before the monsoon rains.*

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* Rajasthan is south of Haryana and South-West of UP. Compared to certain parts of UP, its monsoon season is usually delayed by about 1 month.

As the fuel consumption norm (in litre per kWh) of dg sets varies with (normal) loading conditions of 40% to 100% within a fairly narrow range, it may be inferred that the annual break-up of sales of HSD to industrial/commercial consumers is the same as given in Figures 5.1, 5.2 and 5.3.

However, it is important to realize that the monthly HSD use for power generation may change substantially from year to year, depending on (among other factors) changes in the rainfall pattern, and utility power station and grid availability levels.

Table 5.1 : Industry/Commerce -- Sample Size (1990 Survey)

	Total Sample Size	Consistent Sample Size
HAR	572	135
- 1 shift	414	100
- 2 shift	39	16
- 3 shift	7	5
- others*	112	14
RAJ	124	0
NAN	97	10
- 1 shift	95	10
- 2 shift	2	0
UPP	64	0
DEL	9	0
Total	866	145

* Establishments for which the number of shifts is not specified.

Table 5.2 : Industry/Commerce -- Installed Capacity of dg sets (1990 Survey)

	Average Capacity (kVA) in Total Sample	Average Capacity(kVA) in Consistent Sample
HAR		
- all	11.95	9.01
- 1 shift	7.51	5.40
- 2 shift	21.41	13.625
- 3 shift	57.86	75
- others*	22.20	6
RAJ	10.73	-
NAN		
- all	3.43	4.3
- 1 shift	3.27	4.3
- 2 shift	10.5	-

UPP	7.57
DEL	8.71

* Establishments for which the number of shifts is not specified.

Table 5.3 : Industry/Commerce -- HSD Purchase During Last 3 Months (1990 Survey)

	Average HSD Purchased In Total Sample (litres)	Average HSD Purchased In Consistent Sample (litres)
HAR		
- all	1280.54	1000.17
- 1 shift	1433.12	751.33
- 2 shift	1922.56	1514.38
- 3 shift	5914.29	6720.0
- others*	129.27	129.34
RAJ	1238.51	-
NAN		
- all	2084.02	765
- 1 shift	2039.47	765
- 2 shift	4200	-
UPP	3529.8	-
DEL	1147.26	-

Table 5.4 : Industry/Commerce -- Estimates of Average Hours of Use Per Day (1990 Survey)*

	From HSD Purchase Data	From Given Hours of Use of Each dg set
HAR		
- all	9.571	9.237
- 1 shift	11.424	10.444
- 2 shift	8.524	8.438
- 3 shift	8.272	8.467
- others	1.917	1.806
NAN#	13.338	11.68

* Only for internally consistent responses.

# For 1 shift establishments only.

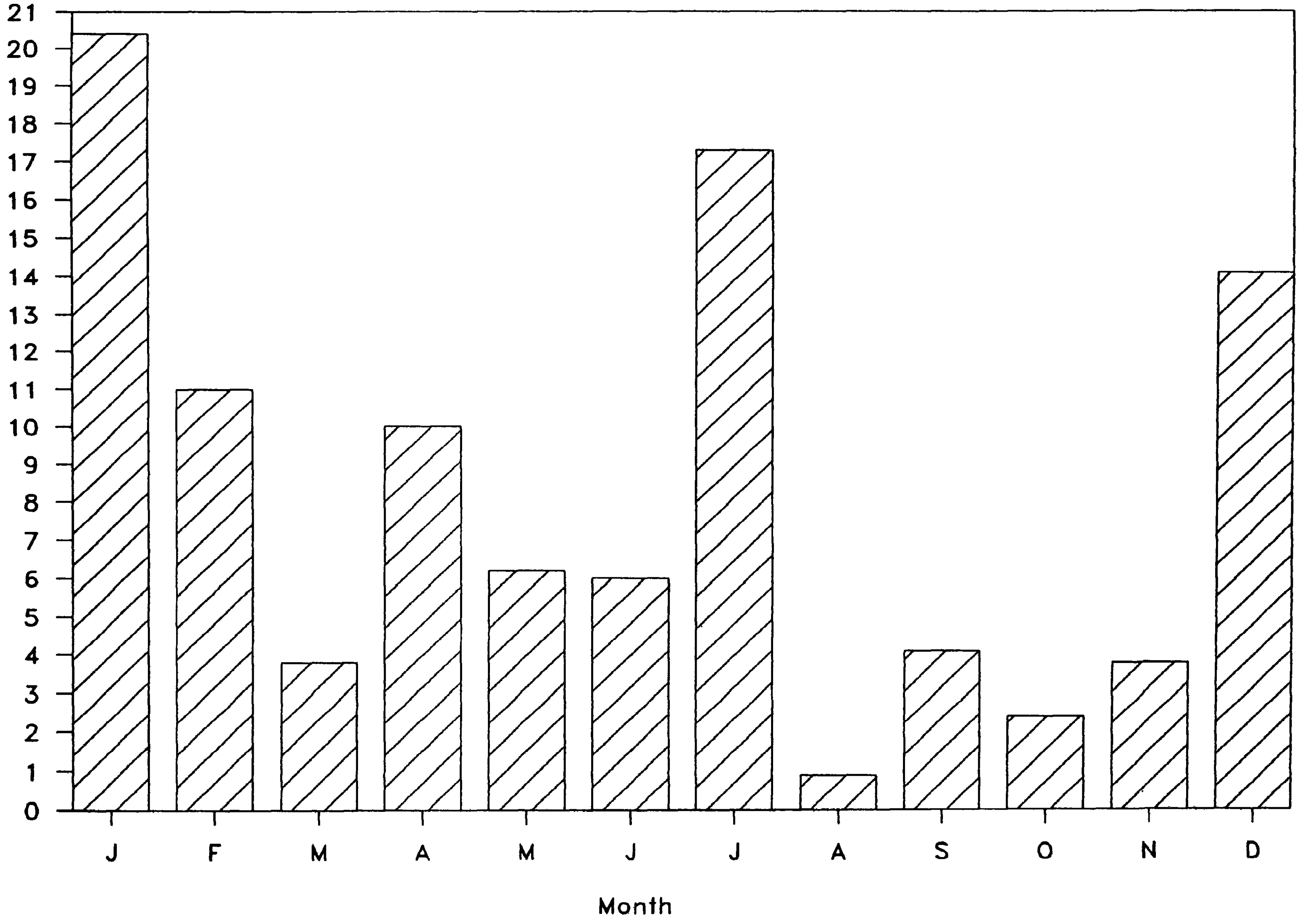
Table 5.5 : Industry/Commerce — Summary of Findings of the Fi Survey Conducted in 1986

	Category I	Category II	Catego III
A. Haryana			
a. Number of Establishments	113	33	8
b. Installed Capacity ('000 kVA)	144.7	183.8	124.
c. Capacity Factor (kWh/kW)	1441.7	1259.0	1884.
d. Annual HSD Use (kilolitre)	1380.4	1456.7	3458.
e. Ave. loading (%)	61.8	43.7	60.
f. HSD use (litre/kWh)	0.238	0.238	0.
B. Rajasthan			
a. Number of Establishments	32	31	-
b. Installed Capacity ('000 kVA)	89.4	131.8	-
c. Capacity Factor (kWh/kW)	260.1	133.8	-
d. Annual HSD Use (kilolitre)	79.9	97.7	-
e. Ave. loading (%)	73.4	44.7	-
f. HSD use (litre/kWh)	0.237	0.236	-
C. Uttar Pradesh			
a. Number of Establishments	105	28	7
b. Installed Capacity ('000 kVA)	216.9	150.7	285
c. Capacity Factor (kWh/kW)	608.1	828.4	1294
d. Annual HSD Use (kilolitre)	784.9	789.2	384
e. Ave. loading (%)	56.2	47.6	4
f. HSD use (litre/kWh)	0.239	0.239	

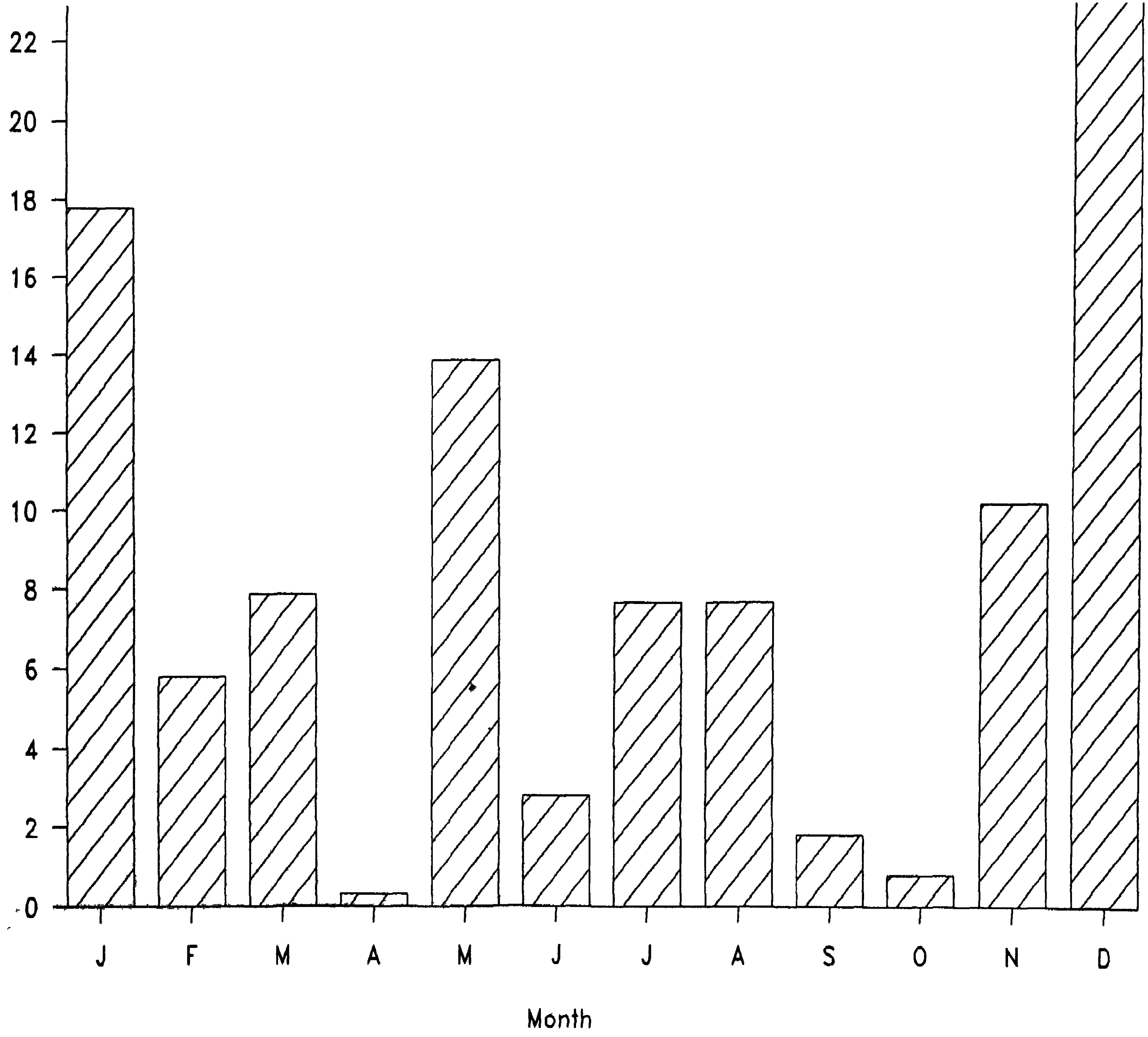
Note : No Category III consumers in Rajasthan.

Source : TERI, "Alternative Generation Expansion Strategies the Northern Region", New Delhi, October 1987.

Fig.5.2: Rajasthan



% Generation from DG Sets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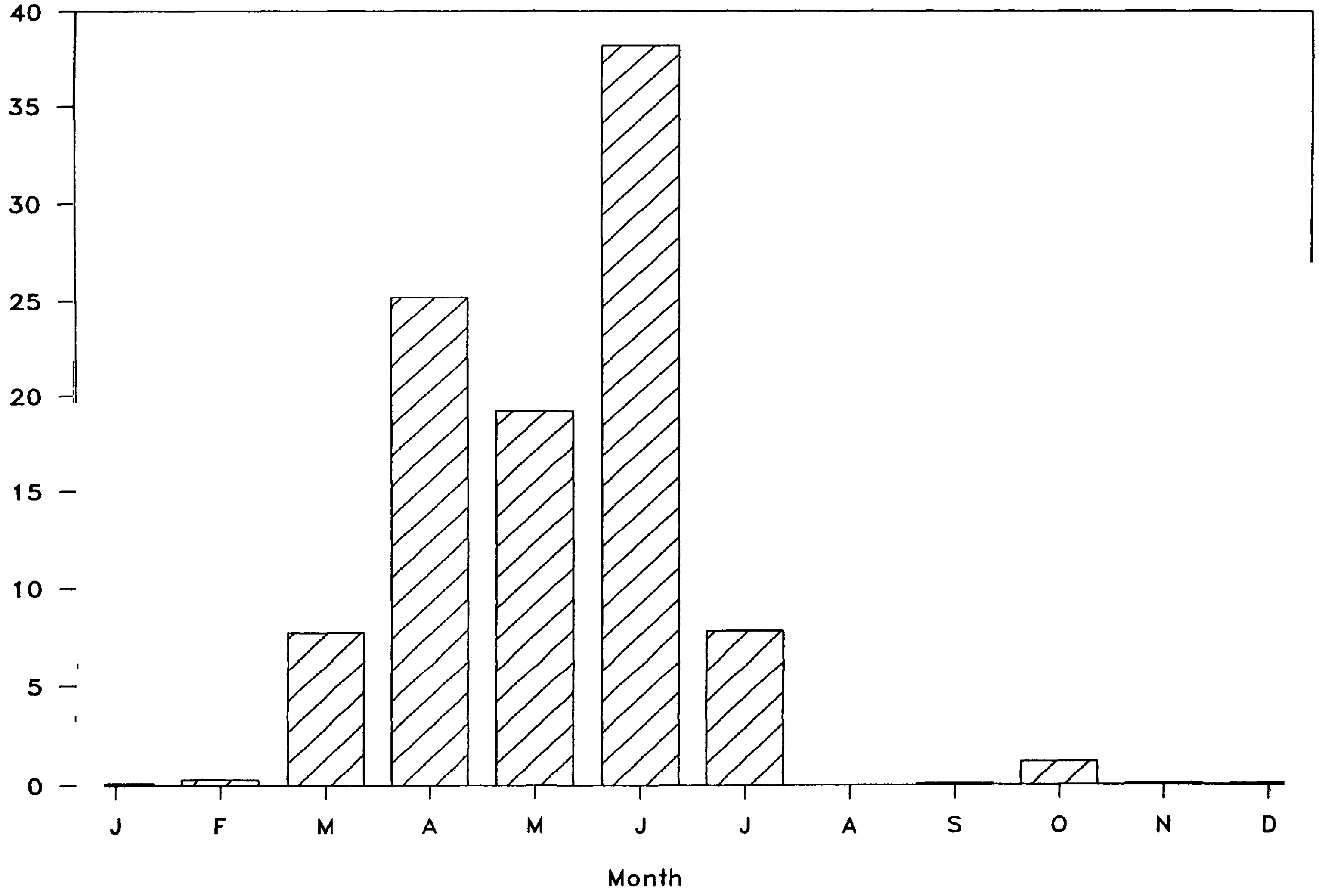

Fig.5.3: Uttar Pradesh

% Generation from DG Sets

VI. MS SALES FORECASTS

6.1 Introduction

As mentioned in Chapter II, data gathered from the field survey are first validated to find if the survey gives any useful information. The next step is to draw inferences for states/UTs where the field survey is not carried out. After this, it becomes possible to make BAU forecasts, as well as other forecasts under various scenario assumptions.

6.2 Validation of Survey Data

The field survey was conducted during the first three quarters of 1990/91 (Chapter II). However, supporting information (regarding registration of vehicles in the states/UTs of the Northern Region, and total MS sales through ROs in the concerned states/UTs) are available only for 1988/89 and 1989/90. In the absence of the type of data gathered from the field survey (particularly regarding fuel consumption per day, number of days of vehicle use per year, and annual fuel consumption) for 1988/89 and 1989/90, and the underlying assumptions that vehicle utilization and fuel use levels have not changed significantly since 1988/89, the findings of the field survey may nevertheless be validated.

In particular, the most recent period for which data for vehicle registrations are available is 31 March 1989. As the number of vehicles registered in any particular state/UT increase with each passing day, it is necessary to take into account the MS sales through ROs both in 1988/89 and 1989/90. The approach is to compute the average annual MS sales over the aforementioned two-year period, and check if it is consistent with the annual MS consumption data per vehicle (as gathered from the field survey) and the number registered as of 31 March 1989.

Table 6.1 gives the population of registered vehicles as of 31 March 1989. It may be noted that the vehicles registered in UP are divided into the hilly, western and other zones of UP as per the population data of the 1981 census. Some of the registered vehicles (particularly 3-wheelers and jeeps) may run on HSD also.* While the share of HSD using jeeps is available from the registration data, that for 3-wheelers is not. Therefore, the number of MS and HSD using 3-wheelers covered in the field survey itself is taken as a benchmark for the share of MS using 3-wheelers in the concerned states/UTs. Clearly, only the MS consuming vehicles need to be considered here.

Table 6.2 gives the sales of MS in the states/UTs of India's Northern Region in 1988/89. This includes sales from ROs of all the four oil companies : Indian Oil Corporation (IOC), Bharat Petroleum Corporation (BPC), Hindustan Petroleum Corporation (HPC) and IBP.

Table 6.3 summarizes the survey results regarding annual MS consumption levels of various types of vehicles in the different states/UTs. Total MS consumption levels in Haryana, Rajasthan, UP and Delhi/New Delhi, on the basis of data in Tables 6.1 and 6.3, are computed and presented in Table 6.4. It may be noted that as explained in Chapter II, for UP/Hill, the survey data from Nainital (NAN) are used; for UP/West, the survey data from Ambala and Karnal (HAR) are used; and for UP/other, the survey data from Mirzapur and Varanasi (UPP) are used.

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* It is understood that it is not legal to retrofit MS using 3-wheelers for passenger transport with HSD engines. However, such retrofits are made in several states, and such 3-wheelers are also covered in the field survey.

Table 6.4 shows that for Haryana, Rajasthan and UP, the average of MS sales in 1988/89 and 1989/90 (Table 6.2) falls between the range of low and high estimates of MS sales as obtained from the survey. Therefore, it may be inferred that the survey findings regarding MS consumption levels are reasonably good and acceptable for further analysis. The singular exception is Delhi/New Delhi, where the average of actual MS sales data in 1988/89 and 1989/90 (as obtained from the oil industry; Table 6.2) is below even the lower end range of MS sales as obtained from the survey. This is probably due to two reasons:

(i) there are several people who live in neighbouring townships of Noida, Ghaziabad, Faridabad and Gurgaon, whose vehicles are registered in Delhi/New Delhi, and who often visit the capital and purchase MS partly from the neighbouring townships; and

(ii) there are several taxis which are registered in Delhi/New Delhi but used for long distance travel. A part of the MS consumption in these taxis is likely to be through MS purchases outside Delhi/New Delhi --- and even outside the Northern Region.

6.3 Benchmark for MS Consumption

Having validated the survey findings, the next step is to find out what could be considered as a likely average annual MS consumption level for various types of vehicles in each of the states/UTs. The approach is to find the relative weights that should be given to the low and high-end estimates of annual MS consumption as obtained from the field survey. For states/UTs where the field survey is actually conducted, this is done by comparing the low and high estimates of MS consumption with the average of actual MS sales in 1988/89 and 1989/90. For the other states/UTs, where the field survey is not actually conducted, survey results of other states/UTs are used, as given in Table 2.3.

Table 6.5 shows the weightage given to the low and high end estimates for various states. Table 6.6 gives the benchmark annual MS consumption levels obtained for various types of vehicles in each state/UT of the Northern Region; these are used for making forecasts.

6.4 Vehicle Population (BAU Forecast)

The objective here is to project the number of vehicles that will be registered in each state/UT of the Northern Region. The data available are : (i) time series sales and registration data for various types of vehicles, for each state/UT in the Northern Region, and for the entire nation; and (ii) projections of targets or manufacturing capability of vehicles of various types to the year 1994/95.

On basis of past data from 1985 to 1989, it is evident that in the Northern Region, a large number of vehicles are scrapped each year. In particular, the average attrition rates are :

(i) 5.5% per year, of the total number of 2-wheelers registered at the beginning of the year;

(ii) 5.8% per year, of the total number of 3-wheelers registered at the beginning of the year;

(iii) 4.2% per year, of the total number of cars registered at the beginning of the year;

(iv) 5% per year, of the total number of jeeps registered at the beginning of the year.

Vehicle attrition rates for the entire country are not significantly different from the above-mentioned rates.

For future years, only the total annual production targets for the entire country to the year 1994/95 are available for each vehicle type. It therefore becomes necessary to decipher the share of sales or registration of each type of vehicle in the Northern Region. An analysis of the latter reveal :

(i) about 33% of the total number of 2-wheelers registered each year in the 1980s were in the Northern Region states/UTs. This trend may be assumed to continue in the future to the year 2004/05.

(ii) about 20% of the total number of 3-wheelers registered each year in the 1980s were in the Northern Region states/UTs. This trend may also be assumed to continue in the future to the year 2004/05.

(iii) there is a rising trend regarding % sales or % registration of cars and jeeps in the Northern Region. The following regression relationships are significant :

$$J_t = 25.5385 + 0.2898\ (t-1980)$$
$$(R^2 = 0.990780,\ F = 752.2;\ t = 27.43)$$

$$JC_t = 17.369 + 0.5977\ (t-1972)$$

$$(R^2 = 0.772864;\ F = 40.83;\ t = 6.39)$$

where "J" is the percentage of jeeps registered in the Northern Region; "JC" is the percentage of jeeps plus cars registered in the Northern Region; and t denotes the year (for example : 1990, 1991 .....).

The annual national production levels of each type of vehicle is projected from the year 1994/95 to 2004/05 on the basis of constant differences in production levels from year to year. This becomes clear from the data in Table 6.7. For instance, the annual production of motorcycles rises by 60,000 from previous year levels, that of scooters by 90,000, that of mopeds by 50,000, and that of cars by 20,000, from 1989/90 to 2004/05. However, for 3-wheelers and jeeps, the increase in production over previous year levels itself keeps on rising in each five-year interval. This also takes into account the rising production targets until 1994/95 -- years for which data are available from the Automotive Component Manufacturers Association (ACMA).

On the basis of the attrition rates, production targets and per cent sales in the Northern Region, the number of 2-wheelers, 3-wheelers, cars and jeeps that will be registered in the Northern Region are computed and presented in Table 6.8. The details of the computations are given in Annexure VI.1 for 2-wheelers, Annexure VI.2 for 3-wheelers, and Annexure VI.3 for cars and jeeps. It may be noted from Table 6.8 that the number of 2-wheelers registered in the Northern Region would rise by over four folds the 1989 levels, cars by a little less than four-folds, and 3-wheelers and jeeps by over five-folds. However, in absolute numbers, the increase in the population of 2-wheelers would be maximum, i.e. by over 10 million.

In order to get the break-up of the registration of 2-wheelers, 3-wheelers, cars and jeeps for each state/UT, their shares in total registration in the past years are computed and analyzed. As the basic aim is to project the state-wise MS sales only to the year 1994/95 (beyond that only the forecast for the entire region is required), it suffices to analyze the registration data of the states/UTs in the 1980s only. A careful examination of various combinations reveals that the average % registration over 1986/87 to 1988/89 is suitable for projecting the registration of 2-wheelers and 3-wheelers, and average registrations over 1987/88 to 1988/89 are suitable for cars and jeeps. The main criteria for deciding these is that the registrations in each state in 1989/90 (the first year of the projections) should be reasonable, and in line with past trends. Table 6.9 gives the percent registration of 2-wheelers, 3-wheelers, cars and jeeps which are used for making further projections of MS sales in each state/UT of the Northern Region.

6.5 Business-as-Usual (BAU) Forecasts of MS Sales

During the 1980s, the manufacture of high efficiency or low intensity 2-wheelers, cars and jeeps was initiated. The efficiency of 3-wheelers is also reported to have improved. Even if no further improvements in design are made until the year 2004/05 (i.e. during the planning time frame), it will be reasonable to assume that the vehicle fleet will gradually become more energy efficient.

It may be assumed that the average fuel consumption of (say) cars in each state/UT in the year 2004/05 will be the same as that of the best one today. For instance, the average fuel consumption of cars in Delhi/New Delhi will change from 12.98 km/litre (the overall average as found from the field survey) to 15.83 km/litre (the best, as found from the field survey) by the year 2004/05. Table 6.10 gives the overall average and best fuel consumption (in km/litre) for 2-wheelers, 3-wheelers, cars and jeeps as found in the survey. For analytical purposes, a constant rate of change of fuel consumption is assumed for each vehicle type in each state/UT.

It may be noted that the fuel consumption levels that will be achieved in each state will be different even for the same vehicle types. This in fact, takes into account the inter-state/UT differences in road conditions, traffic management problems etc. These inter-state/UT differences form an integral part of the BAU scenario.

On the basis of the vehicle production, sales and attrition rates (which give the number of vehicles registered), the annual MS fuel consumption of vehicles of various types, and the likely changes in fuel efficiency of various type of vehicles as discussed above, the MS sales in each state/UT of the Northern Region are projected to the year 2004/05. The detailed projections, by each type of vehicles and for all interim years to 2004/05 are given in Annexure VI.4. The projections are also summarized and presented in Table 6.11.

It is is evident that the MS sales in the Northern Region will increase rapidly from about 1 million kl in 1989/90 to 4.8 million kl (3.4 million tonnes or MMT) by the year 2004/05. This is a very rapid growth of MS sales (about 10% per annum) and will happen only if the production of private vehicles for road passenger transport goes on as per present trends and expectations -- and in the absence of suitable policy interventions to curb the utilization of private modes of road transport and/or making available alternative fuels.

As per these projections, the share of MS sales to 2-wheelers in the Northern Region will reduce marginally from 53.69% in 1989/90 to a little over 52% by 2004/05. There will be somewhat more pronounced decrease in the share of MS sales to cars, from 34.74% to 31.22% during the same time period. However, the share of MS sales will rise for 3-wheelers and jeeps, from 8.22% to 11.96% for the former, and from 3.34% to 4.77% for the latter.

6.6 Price and Income Effects

The basic assumption in the BAU forecasts is that any likely reduction in MS sales that may occur due to a rise in MS prices until the year 2004/05, will be more-or-less compensated by rising income levels.

In reality, as pointed out by various researchers*, the increases in (real term) prices of MS will reduce its sales in two ways : (i) by reducing new registrations, i.e. by reducing the vehicle population; and (ii) by increasing the average efficiency of the vehicle fleet. Likewise, rising real incomes over time also effect the MS sales in two ways: (i) by increasing new registrations, i.e. increasing the vehicles population; and (ii) by increasing the utilization of vehicles (i.e. km driven per annum). Both the price and income effects are known to take effect over an extended time period -- the short term impacts are very different and much smaller than the impacts which are observed in the long term of a decade or more.

During the period in which the field survey was conducted (April through December 1990), the price of MS was increased once (from about Rs 10/litre to about Rs 12.5/litre). However, this price increase was accompanied by real or perceived/expected shortages in MS supply. Therefore, from the field survey, no firm conclusions on the effects of MS price increases could be drawn.

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* Pindyck (1979), "The structure of World Energy Demand", MIT Press 1979; Ramsey, Rasche and Allen, "An Analysis of Private and Commercial Demand for Gasoline", in Review of Economics and Statistics, 57 (Nov. 1975), pp 502-507.

As far as the expansion of vehicle population is concerned, the past experience in India suggests that the registrations have been essentially limited by vehicle production levels. The high premium which cars and 2-wheelers fetched until a few years back indicates that the intrinsic demand for private transport vehicles was much higher than the supply levels. This situation has eased somewhat in the past few years; and it may very well be that the Government's plans towards adding to vehicle production capacity is in line with the increase in purchasing capacity of the people. In other words, it may be assumed that the additional production capcity of 2-wheelers, 3-wheelers, cars and jeeps to the year 2004/05 in the BAU forecast may well need to be utilized fully.

Likewise, the average fuel efficiency of the fleet is also largely influenced by the Government's decision to allow manufacturers from overseas to set up plants in India, or/and allowing Indian manufacturers to collaborate with manufacturers overseas.

The above discussion suggests that the only way price and income effects come to influence MS sales directly, is in terms of utilization of the vehicle fleet. However, it should be noted that as the average fuel efficiency of the vehicle fleet has changed in the 1980s, and is expected to continue changing further, the important determinant of price effects on the sales is not "Rs/litre" price of MS, but the "Rs/km" of fuel-linked driving costs. For instance, if real term MS prices in Delhi/New Delhi remain unchanged from present day levels of Rs 12.23/litre, the relevant price indicator for cars will change from Rs 0.942/km in 1990 to Rs 0.773/km in 2004/05.* As the average utilization of cars and other vehicles (2-wheelers, 3-wheelers and jeeps) is assumed to remain the same in the BAU forecast, the implicit assumption is that the real term prices of MS increase a "certain amount" from 1990 to 2004/05.

Reliable elasticity estimates for India are not available. Some inferences may however, be drawn from other countries, for which elasticity estimates are available. Elasticity estimates from pooled time-series data from 11 developed countries are presented in Table 6.12. As MS sales in India are largely in urban areas, where income levels are high relative to that for the entire country, it may suffice to use elasticity estimates derived for developed countries for the purpose of understanding the impacts of price effects on urban private transportation in India. Nevertheless, it is important to note that prices effects increase with time, i.e. it is not only important to know the quantum of price increase in order to gauge the reduction in MS demand by 2004/05, but it is equally important to know when this price increase will occur.

The implicit assumption of the BAU forecast therefore is that the MS sales price increases by Rs 2.07/litre# immediately (i.e. 16.9% in real terms) and then stays constant in real terms to the year 2004/05 -- provided income effects are insignificant during this time period and the mix of makes for each vehicle type stay at the 1990 level.

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* 0.942 = 12.23/12.98; 0.773 = 12.23/15.83 (see table 6.10)

# -1.06 = ((0.773-0.942)/0.942)/((x-12.23)/12.23) gives x = 2.07. These computations are in particular for Delhi/New Delhi, where the present MS sales price is Rs 12.23/litre.

If the real prices of MS were to rise further by 10% in 1995, the total MS sales will reduce by 8.42% in 2004/05. However, a larger increase of MS sales price in the year 2000, by 16.8% in real terms will lead to an 8.42% reduction in MS sales by the year 2004/05. In a similar fashion, several MS price vs sales scenarios can be drawn with the help of Table 6.12.

6.7 Low Vehicle Production (LVP) Scenario Forecast

A major assumption of the BAU scenario is that the annual vehicle production levels increase to the year 2004/05 in much the same way as they are projected to increase until 1994/95. This kind of rapid expansion of the automobile industry has not been witnessed in India so far. Therefore, in the "low vehicle production scenario" the annual vehicle production rates are projected to increase more gradually. In more specific terms, the incremental production reduces from the pre-1994/95 rates by 50% from 1995/96 to 1999/2000, and a further 50% from 2000/01 to 2004/05. This becomes clear from the projections of vehicle productions given in Table 6.13. The implications of reduced vehicle production levels on registrations in the Northern Region are detailed in Annexure VI.5 for 2-wheelers, Annexure VI.6 for 3-wheelers, and Annexure VI.7 for cars and jeeps. Assumptions regarding share of sales of new vehicles in Northern Region states/UTs and vehicle attrition rates are the same as in the BAU scenario,

With other assumptions unchanged from the BAU scenario, the MS sales can be forecast to the year 2004/05. The detailed forecasts, for each state/UT and each type of vehicle are given in Annexure VI.8, and forecasts are summarized in Table 6.14. As per the low vehicle production scenario, the MS sales in the Northern Region will rise from about 1 million kl in 1989/90 to about 4.1 million kl (2.9 MMT) by 2004/05.

This still represents a more than four-field increase in MS sales from the present day levels and the total MS sales in 2004/05 are only about 15% less than in the BAU scenario forecast; although vehicle production rates in the terminal year (2004/05) are reduced much more significantly. For instance, a comparison of data in Tables 6.14 and 6.7 reveals that the annual production of cars in 2004/05 in the LVP scenario is about 26% less than in the BAU scenario. Likewise, the production of 2-wheelers is less by 27%, that of 3-wheelers by 44%, and of jeeps by 49%.

If overall passenger transport requirements are to remain the same as in the BAU scenario, the low vehicle production scenario also implies that the passenger traffic handling capabilities of public modes of transport (particularly, by buses, rapid urban mass transport systems and railway traction) should increase. This however, may lead to an increase of HSD sales through ROs but only to the extent that certain additional private buses would be operating. The major increase in energy use may be HSD (purchased directly from oil industry depots/installations) for buses operated by state/UT transport undertakings and railways, and electricity for urban mass transit systems.

6.8 MS Fuel Conservation (FC) Scenario Forecast

The Inter-ministerial Working Group (IMWG), in its report in 1983, had identified several measures that could be taken to reduce MS consumption, by increasing the number of kilometres a vehicle is driven per litre of fuel. One of the important ways of achieving this objective is the improvements of the quality of road surfaces and widening of roads. In fact, the Central Road Research Institute (CRRI) had estimated in 1982, that about a 15% reduction in fuel consumption could be achieved. The IMWG had recommended that a 20-year programme for upgrading the quality of road surfaces be implemented in that manner.

Yet, we find today no significant overall improvement in the quality of road surfaces compared to that in 1983. And it is this observation that is an implicit assumption in the BAU and LVP scenarios.

If it were possible to initiate steps in this direction during 1991 itself, some progress could be made by the year 2004/05. For purposes of making these projections, it is assumed that only a conservative 10% savings in fuel would be possible on the LVP scenario by 2004/05, about 5% by the year 1999/2000 and about 1% by the year 1994/95. Table 6.15 gives the projections of MS sales for the Northern Region. It may noted that the total MS sales are projected to increase to about 3.7 million kl (2.6 MMT) by the year 2004/05.

However, it is important to note that the savings in MS consumption would be possible only if adequate investments are made not only for upgrading the surfaces and widening of the existing road network, but of expanding the roads (with suitable surfaces and sufficient number of lanes) so as to cater to the increase in traffic that will take place as the vehicle fleet expands. An assessment of the additional financial resources that are required for this purpose is of course useful, but is beyond the scope of the present study.

6.9 Alternative Fuels (AF) Scenario Forecast

A further reduction in MS sales may be possible if alternative fuels are used to run the vehicle fleet. Several alternative fuels may be considered, the most important of which are CNG and ethanol.

As far as CNG is concerned, the vehicle owners (particularly car and jeep owners) would need to invest in "CNG conversion kits" and the oil industry would need to establish the CNG distribution/sales network. The latter is particularly capital intensive, but the existing ROs could be fitted with CNG pumps. Further, as in India, a large number of vehicles have 2-stroke engines, R&D effort will be necessary before the benefits of investing in CNG distribution/sales facilities can be realized fully.*

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* As the percentage of 2-stroke engine vehicles in the vehicle fleet of developed countries is low, the emphasis on R&D related to CNG use to substitute MS has focussed primarily on cars and jeeps -- technology for which could either be imported, or developed indigenously.

On the other hand, ethanol seems far more promising. A study by the Indian Council of Agricultural Research (ICAR) in 1979#, showed that ethanol can be a viable partial substitute for MS, and should therefore be promoted. The ICAR (1979) study in fact recommended that "....the cropping pattern in the country could be so adjusted as to increase the cane area. The diversion of cropped land by 0.2% is not going to affect markedly the other crops such as wheat, paddy etc., while it contributes substantially to cane for production of ethanol....and this diversion is desirable for production of ethanol in the national interest and in the interest of saving foreign exchange."

However, the conclusions of a Government of India (1980)● study were at variance with those of the ICAR (1979) study. This study recommended that ".....enough economic justification exists in our country to produce many chemical products using alcohol as the major feedstock" and that ".....alcohol should preferentially be used for making high value added chemical products and its use as an automotive fuel should not be considered." This conclusion, which was based on inadequate data and faulty analysis, seems to have determined to policy adopted by the Government of India. The basic problem with the analysis is that it treats administered prices of raw materials as their economic costs and uses these prices for estimating the economic costs of producing chemicals.

# ICAR, Report of the Commission on Sugarcane into Ethanol, New Delhi, 1979.

● Government of India, Report of the Committee of Technical Experts on Alcohol and Alcohol-based Industries", January 1980.

A detailed study* in 1984, considered various issues regarding ethanol production, the most important of which are : (i) economics of modernizing the traditional sugar industry in India, because a major share of sugarcane is at present used for manufacturing unrefined sugar and jaggery; (ii) variations in sugarcane yields across agro-climatic zones, and the consequent socio-economic benefits of shifting sugarcane cultivation to relatively high-yielding areas; (iii) availability of molasses for ethanol production, particularly because it relates to the demand for sugar in the domestic market as well as for export; and (iv) implications for the petroleum refining industry -- if ethanol were to be blended with MS, it will release naphtha (which comes from the same fraction of light distillates) for use as feedstock in the petrochemical industry, versus the situation when alcohol is used to replace petrol-ethylene or propylene, and thus reduces the demand for naphtha (which can lead to an increase in MS yields). The results of this study indicate the economic viability of diverting ethanol for blending with MS, over a wide range of assumptions.

In view of the above discussion regarding ethanol, it appears that ethanol can be considered as a likely viable option to substitute MS partly. Brazil's Proalcool programme, which was instituted in the mid-1970s, has lead to a situation where all Brazilian MS now contains 22% anhydrous ethanol, and about 25% of spark-ignition engine vehicles are fuelled by hydrous ethanol.

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* Ramesh Bhatia, "Economics of Ethanol Production in India : A study in Social Benefit-Cost Analysis", Institute of Economic Growth, New Delhi, 1984.

Therefore, for analytical purposes, it may be assumed that ethanol blending would reduce the demand for MS by a further 15% by the year 2004/05 -- by 7% by 1999/2000, and by 2% by 1994/95.* The sales of the MS component of the MS-ethanol blend that will be sold as per the assumptions of this scenario, is given in Table 6.16. It may be noted that the forecasts of the MS component sales are for a situation where the vehicle production is low (as in the LVP scenario) and the fuel conservation measures are also taking place as in the FC scenario).

Table 6.16 shows that MS requirements for sales (as a component of the MS-ethanol blend) through ROs, will only be 3.1 million kl (2.2 MMT) in the Northern Region in the year 2004/05. In particular, the annual MS requirements will increase only by less than 0.25 million kl (0.2 MMT) during the five year period 1999/2000 through 2004/05.

6.10 Overview

The discussion above shows that unless a concerted effort is made towards curbing the MS demand growth, its requirements will increase rapidly to more than 4.5 times the 1989-1990 level during the next 15 years only. This poses serious problems, particularly regarding the import requirements (and consequent foreign exchange expenditure implications) -- because even with an optimistic outlook on indigenous crude oil production and refining capacity additions, it is difficult to visualize a situation where about

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* For further details regarding implications on employment potential, sugar availability, sugarcane cultivation etc., refer to Ramesh Bhatia (1984).

4.8 million kl (3.4 MMT) of MS could be made availabe for retail sales in the Northern Region alone. In other words, it is anticipated that MS sales may be seriously contrained by supply/availability considerations.

It is in the context of avoiding recourse to measures like rationing or other similar measures to keep MS sales in check, that serious consideration should be given towards : (i) investing in and developing other means of passenger transport, particularly reliable and efficient urban mass transit systems; (ii) taking steps towards having better roads; and (iii) developing alternative fuels. It may be noted that (i) and (ii) above would also lead to a situation where traffic management problems (which seem to be deteriorating with each passing year, and which lead to an over-consumption of automotive fuels) reduce.

The analysis in preceding sections also shows that even if suitable policies were formulated today, they would begin to have a noticeable impact only after a decade or more. In fact, if CNG were also to be introduced on a significant scale, it may very well be that the sales of MS level off in the early years of the next century -- or even begin declining.

The very fact that nearly 70% of the country's hydrocarbon resources prognostications are in the form of natural gas, and that gas-oil ratios of future hydrocarbon discoveries is likely to rise, indicates that CNG should be given due emphasis and priority in India.

Table 6.1 : Vehicle Registrations as of 31 March 1989 ('000)

	2W						
	mobikes (mb)	scooters (sc)	mopeds (md)	all	3W	Cars	Jeeps
HAR1)	46.84	119.65	35.30	201.80	6.95	16.80	5.35
HP2)	6.10	15.59	4.60	26.30	1.04	4.25	4.40
JK3)	8.84	22.59	6.67	38.10	3.07	15.30	4.75
PUN4)	145.73	372.24	109.83	627.80	14.05	50.90	9.55
RAJ5)	94.94	242.51	71.55	409.00	13.08	28.40	29.80
UP(Total)6)	200.85	513.07	151.38	865.30	18.75	87.00	26.70
-UP/Hill	8.35	21.33	6.29	35.98	0.78	3.62	1.11
-UP/West	44.77	114.35	33.74	192.86	4.18	19.39	5.95
-UP/other	147.74	377.38	111.35	636.46	13.79	63.99	19.64
CHD7)	37.14	94.87	27.99	160.00	2.56	26.10	2.30
DEL8)	200.85	513.07	151.38	865.30	43.24	284.20	14.70

Source : Automative Component Manufacturers Association of India (ACMA), Automative Industry of India : Facts and Figures 1990, New Delhi; and ACMA (personal communications).

1) 95.5% of the registered 3-wheelers and 32.3% of registered jeeps run on MS.
2) 78.8% of the registered jeeps run on MS.
3) 80.6% of the registered jeeps run on MS.
4) 95.5% of the registered 3-wheelers and 32.3% of registered jeeps run on MS.
5) 44.5% of the registered 3-wheelers and 38.7% of registered jeeps run on MS.
6) 94.4% of 3-wheelers and 32.8% of registered jeeps run on MS.
7) 32.3% of registered jeeps run on MS.
8) Nearly all registered cars (99.8%) and 61.1% of registered jeeps run on MS.

Table 6.2 : MS Sales Through Retail (kl)

	1988/89	1989/90	Average
HAR	106,835.0	132,433.6	119,634.6
HP	17,856.2	23,196.8	20,526.5
JK	33,896.5	35,990.4	34,943.4
PUN	213,502.6	259,917.5	236,710.1
RAJ	124,726.8	150,986.9	137,856.8
UP	354,961.0	416,953.3	385,957.2
CHD	30,099.5	34,599.1	32,349.3
DEL	397,073.7	449,316.0	423,194.9

Source : IOC (Personal Communications).

Table 6.3 : Average Annual MS Consumption per Vehicle (litre/year)

	2W					
	(mb)	(sc)	(md)	3W	Car	Jeep
A. Lower End of Range						
HAR (a)	273.86	262.44	133.48	1151.02	1449.64	1092.68
RAJ (b)	188.20	106.06	101.54	1447.72	389.66	388.51
NAN (c)	534.85	765.32	217.26	820.08	2005.16	1757.82
UPP (d)	162.80	98.28	41.02	1357.97	414.36	1272.96
DEL (e)	235.75	179.36	92.27	1022.82	875.90	927.43
B. Higher End of Range						
HAR (a)	728.09	741.58	443.87	2999.35	3365.31	2604.23
RAJ (b)	711.81	540.54	457.72	3536.97	1726.66	1729.02
NAN (c)	1206.11	1826.36	434.52	2095.45	4663.39	4010.79
UPP (d)	718.30	551.33	362.89	3327.43	1308.09	3736.18
DEL (e)	777.13	717.80	470.85	2551.39	2626.11	2849.54

Note : (a) Based on survey in Ambala and Karnal districts.
(b) Based on survey in Ganganagar district.
(c) Based on survey in Nainital district.
(d) Based on survey in Mirzapur and Varanasi districts.
(e) Based on survey in Delhi/New Delhi.

Table 6.4 : Survey Validation -- Estimates of Total MS Sales Through Retail (kl/year)

	Lower End Estimate	Higher End Estimate
HAR	82,822.47	219,450.1
RAJ	74,829.12	320,979.2
UP	230,311.6	719,850.3
DEL	454,299.7	1476,326.1

Table 6.5 : Weightage for Low and High End Estimates of Average Annual MS Consumption Levels from Field Survey (fraction)

	Weightage	
	Low End	High End
HAR	0.731	0.269
HP	0.648	0
JK	0.551	0
PUN	0.967	0
RAJ	0.744	0.256
UP/Hill	0.723	0.277
UP/West	0.723	0.277
UP/Other	0.723	0.277
CHD	0.594	0
DEL	0.932	0

Table 6.6 : Benchmark Annual Average MS Consumption Levels (lit/vehicle/year)

	2W					
	(mb)	(sc)	(md)	3W	Car	Jeep
HAR	396	392	217	1649	1966	1500
HP	347	496	141	532	1300	1139
JK	295	422	120	452	1105	969
PUN	265	254	129	1113	1401	1056
RAJ	322	217	193	1983	732	732
UP/Hill	721	1059	277	1174	2742	2382
UP/West	400	395	220	1663	1981	1512
UP/Other	317	224	130	1904	662	1956
CHD	140	107	55	607	520	551
DEL	220	167	86	953	816	864

Note : To illustrate how the above-mentioned numbers are computed:
396 = (0.731) (273.86) + (0.269) (728.09)
i.e. data from Tables 6.3 and 6.5 are used.

Table 6.7 : BAU Scenario — Annual Production of 2-wheelers, 3-wheelers, Cars and Jeeps in India ('000)

	2W			3W*	Car	Jeep*
	(mb)	(sc)	(md)			
A. Targets for Production						
1989/90	510	765	425	85	180	39
1990/91	570	855	475	100	200	46
1991/92	630	945	525	115	220	53
1992/93	690	1035	575	130	240	60
1993/94	750	1125	625	150	260	70
1994/95	810	1215	675	170	280	80
B. Further Projections						
1995/96	870	1305	725	190	300	90
1996/97	930	1395	775	210	320	100
1997/98	990	1485	825	230	340	110
1998/99	1050	1575	875	257	360	125
1999/00	1110	1665	925	284	380	140
2000/01	1170	1755	975	311	400	155
2001/02	1230	1845	1025	338	420	170
2002/03	1290	1935	1075	365	440	185
2003/04	1350	2025	1125	401	460	207
2004/05	1410	2115	1175	437	480	229

* Includes vehicles which may be used for freight transport. Also includes vehicles which run on HSD.

A. Source : ACMA, op cit Ref. Table 6.1.

Table 6.8 : BAU Scenario -- Projections of Registration of 2-wheelers, 3-wheelers, Cars and Jeeps in the Northern Region ('000)

As of	2W					
31 March	(mb)	(sc)	(md)	3W	Car	Jeep
1989 (A)	741.30	1893.59	558.71	102.74	512.95	97.55
1990 (P)	861.35	2066.47	654.31	113.20	548.01	104.86
1995 (P)	1645.02	3212.43	1289.08	204.27	891.33	170.01
2000 (P)	2680.14	4741.25	2137.02	362.58	1298.65	299.95
2005 (P)	3903.24	6558.62	3145.61	602.15	1938.93	526.28

(A) : Actuals
(P) : Projections

Table 6.9 : Per cent Registrations of 2-wheelers, 3-wheelers, Cars and Jeeps in Northern Region states/UTs

	2W*	3W*	Cars#	Jeeps#
HAR	6.02	6.82	3.15	5.39
HP	0.79	1.00	0.86	4.63
JK	1.23	3.14	3.00	4.97
PUN	20.17	14.66	9.93	10.02
RAJ	12.51	11.71	5.55	31.43
UP	26.00	17.89	17.22	27.36
CHD	5.10	2.44	4.78	2.17
DEL	28.20	42.34	55.51	14.04

* Average of per cent registrations in 1986/87 through 1988/89.
# Average of per cent registrations in 1987/88 through 1988/89.

Table 6.10 : Present and Projected Fuel Consumption Norms (km/litre)

	2W			3W	Car	Jeep
	(mb)	(sc)	(md)			
A. Overall Average fuel consumption (km/litre)						
HAR	41.94	36.38	56.72	15.64	11.33	13.28
RAJ	38.97	39.49	51.82	23.41	14.23	13.50
NAN	39.87	31.20	70	19.16	11.40	13.02
UPP	33.13	37.16	49.59	20.78	12.94	10.83
DEL	39.86	36.92	49.65	23.59	12.98	11.77
B. Best fuel consumption (km/litre)						
HAR	57.68 (HH)	44.23 (KH)	70	22.97 (B)	14.15 (M)	16.33 (MG)
RAJ	65.09 (HH)	41.45 (BC)	70	24.1 (L)	15.80 (M)	13.50 (MG)
NAN	60.0 (HH)	33.5 (LML)	70	19.16 (B)	15.25 (M)	15.04 (MG)
UPP	44.00 (HH)	41.16 (BC)	70	23.05 (V)	14.63 (M)	12.00 (MG)
DEL	55.23 (HH)	41.81 (KH)	70	25.53 (B)	15.83 (M)	11.88 (MG)

HH : Hero Honda (2-wheeler, mobike)
KH : Kinetic Honda (2-wheeler, scooter)
BC : Bajaj Chetak (2-wheeler, scooter)
LML: LML Vespa (2-wheeler, scooter)
B : Bajaj (3-wheeler)
L : Lamby (3-wheeler)
V : Vespa (3-wheeler)
M : Maruti (Car)
MG : Maruti Gypsy (Jeep)

Table 6.11 : BAU Scenario -- Forecasts of MS Sales (kilolitre)

	1994/95	1999/00	2004/05
HAR	194,552	278,801	379,322
HP	34,256	50,686	72,836
JK	58,824	84,746	119,874
PUN	408,725	582,476	788,543
RAJ	239,112	355,068	498,501
UP	654,024	959,080	1,335,632
CHD	54,328	77,952	107,396
DEl	728,067	1,049,963	1,480,328
Total (Northern Region)	2,371,887	3,438,772	4,782,232

Table 6.12 : Price and Income Elasticities of MS Sales

Year	Price Elasticity	Income Elasticity
1	-0.111	0.067
2	-0.219	0.134
3	-0.320	0.198
4	-0.414	0.259
5	-0.501	0.316
10	-0.842	0.541
15	-1.060	0.686

Source : Robert S. Pindyck, "The structure of World Energy Demand", MIT Press (1979).

Table 6.13 : Low Vehicle Production Scenario -- Annual Production of 2-wheelers, 3-wheelers, Cars and Jeeps in India ('000)*

	2W					
	(mb)	(sc)	(md)	3W	Car	Jeep
1995/96	840	1260	700	180	290	85
1996/97	870	1305	725	190	300	90
1997/98	900	1350	750	200	310	95
1998/99	930	1395	775	210	320	100
1999/2000	960	1440	800	220	330	105
2000/01	975	1462.5	812.5	225	335	107.5
2001/02	990	1485	825	230	340	110
2002/03	1005	1507.5	837.5	235	345	112.5
2003/04	1020	1530	850	240	350	115
2004/05	1035	1552.5	862.5	245	355	117.5

* Note : Productions levels until 1994/95 same as in the BAU scenario.

Table 6.14 : Low Vehicle Production Scenario -- Forecast of MS Sales (kilolitre)

	1994/95	1999/00	2004/05
HAR	194,552	264,664	325,079
HP	34,256	47,867	60,848
JK	58,824	80,415	101,806
PUN	408,725	554,040	680,195
RAJ	239,112	335,936	421,759
UP	654,024	909,315	1,138,414
CHD	54,328	74,232	92,836
DEL	728,067	997,872	1,267,705
Total (Northern Region)	2,371,887	3,264,340	4,088,642

Table 6.15 : MS Fuel Conservation Scenario -- Forecast of MS Sales (kilolitre)*

	1994/95	1999/00	2004/05
HAR	192,606	251,431	292,571
HP	33,913	45,474	54,763
JK	58,236	76,394	91,625
PUN	404,638	526,338	612,176
RAJ	236,721	319,139	379,583
UP	647,484	863,849	1,024,573
CHD	53,785	70,520	83,552
DEl	720,786	947,978	1,140,935
Total (Northern Region)	2,348,168	3,101,123	3,679,778

* MS conservation on the LVP scenario.

Table 6.16 : Alternative Fuels Scenario -- Forecasts of MS Component of the MS-Ethanol Blend Sales (kilolitre)*

	1994/95	1999/00	2004/05
HAR	188,754	233,831	248,685
HP	33,235	42,291	46,548
JK	57,071	71,046	77,881
PUN	396,545	489,494	520,350
RAJ	231,987	296,799	322,646
UP	634,534	803,380	870,887
CHD	52,709	65,584	71,019
DEl	706,370	881,620	969,795
Total (Northern Region)	2,301,205	2,884,044	3,127,811

* MS component of the MS-ethanol blend on the MSFC scenario forecasts.

VII. VALIDATION OF SURVEY FINDINGS OF HSD CONSUMERS

7.1 Introduction

As HSD sales through ROs are made to transport sector as well as to agriculture and industrial/commercial consumers, the findings from the survey to all such consumers are validated simultaneously.

The approach is to match the total HSD sales data in 1989/90 (as obtained from the oil industry) to estimates of sales of HSD to transport, agricultural and industrial consumers (as estimated from survey data plus other supporting information). HSD sales to agricultural and industrial/commercial consumers are first estimated, and the balance (i.e. total HSD sales minus sales to agricultural and industrial/commercial consumers) is compared with the findings of the survey regarding HSD sales for transportation.

The survey validation process is detailed below.

7.2 Agricultural Sector

Although the field survey extended to cover the entire Kharif season and the beginning of the Rabi season, every agricultural consumer interviewed in fact gave estimates of HSD requirements only for one particular season. Secondly, owing to the fact that the field survey was organized so as to interview farmers who visited ROs to purchase HSD (field investigators did not visit villages to interview farmers there), it was difficult to ensure that the same set of farmers got interviewed in both the cropping seasons.

In this situation, it is necessary to extrapolate from HSD consumption data for one cropping season, the annual HSD requirements in agriculture. In particular : (i) the ratio of gross irrigated area to net irrigated area (GNI) in a particular state, may be used to estimate the annual HSD requirements for diesel pumpsets use; (ii) the ratio of gross cropped area to net sown area (GNC) may be used to estimate the HSD requirements for tractor use for agricultural purposes; and (iii) the average of the ratios of gross irrigated area to net irrigated area and the gross cropped area to net sown area may be used to estimate the HSD requirements in tractors for transportation purposes.*

The two ratios may themselves keep on increasing in the foreseeable future as the stock of tractors and diesel pumpsets keep on increasing. The basis for projecting GNI and GNC is detailed in Chapter IX. For the year 1989/90, the values of these ratios are given in Table 7.1.

It may be noted that agricultural consumers covered in the field survey in Haryana and Rajasthan gave data for the Rabi season, while those in the Nainital, Mirzapur and Varanasi districts of UP gave data for the Kharif season. Therefore, in view of the seasonal differences in water requirements of crops (Table 4.11), the factors which are used to derive annual HSD requirements for diesel pumpsets are given in Table 7.2.

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* Because some farmers have tractors only, while others use both tractors and diesel pumpsets. Farmers who use both, often use tractors to a significant extent only to travel to ROs to purchase HSD for use in their diesel pumpsets.

In addition, the following data are taken into account for making forecasts of HSD consumption in the year 1989/90:

(i) average cultivated area over which one tractor and one diesel pumpset are used (Table 4.4);

(ii) population of tractors and diesel pumpsets (Table 4.6); and

(iii) HSD consumption norms per cropping season by one tractor and diesel pumpset (Table 4.10).

As for MS sales (Chapter VI), the findings of the field survey in one state/UT are used for another similar state/UT. The states/UTs or parts thereof, for which the survey findings from another state/UT are taken, are given in Table 2.3 (Chapter II).

On the basis of the discussion above, the estimates of HSD sales to agricultural consumers in 1989/90 are given in Table 7.3. It may be noted that as the population of HSD using equipment is available as on 31 March 1989 and 31 March 1990, the average of these is used for deriving the estimates in Table 7.3. This may be adequate as the population of tractors and diesel pumpsets increases with each passing month.

It may be noted from Table 4.6, that according to official sources (Automotive Component Manufacturers' Association and Ministry of Agriculture, Government of India), no tractors or diesel pumpsets are registered in Delhi/New Delhi. Yet a survey of farmers in New Delhi's neighbouring area of Gurgaon district clearly shows that farmers sometime purchase HSD from ROs in Delhi/New Delhi rather than Gurgaon (section 4.2). The same may be true for farmers in Delhi/New Delhi's neighbouring districts of

Ghaziabad, Faridabad etc. Therefore, for analytical purposes, it is assumed that 1% of total estimated requirements of HSD in Haryana (HAR) and Western UP (UP/West) will be met through purchases from ROs in Delhi/New Delhi. The estimates of HSD sales to agricultural consumers in Table 7.3 take this adjustment into account.

Table 7.3 shows that Punjab and UP each accounted for about 40% of total sales to agricultural consumers in 1989/90. Haryana accounted for about 12.5%. The other states plus Chandigarh and Delhi/New Delhi accounted for the remainder. The survey findings conform to the common knowledge that Haryana, Punjab and UP are major agricultural states.

It may however be noted that as the baseline information gathered from the field survey is for a normal/good rainfall year, the HSD sales estimates in Table 7.3 reflect the HSD for tractors to a significant extent. In a drought year, when diesel pumpsets are likely to be pressed into service, it may very well be that the sales pattern of HSD to agricultural consumers differs substantially.

7.3 Industrial/Commercial Sector

As clearly evident from Chapter V, the 1990 field survey of industrial/commercial consumers of HSD cannot be considered to provide any reliable information. Therefore, the survey findings of the 1986 survey are used. However, these findings cannot be used directly, and need to be adjusted to take account of differences in power supply situation in 1985/86 and 1989/90. For this, it is important to know the extent of electricity shortages in each state/UT of the Northern Region in the two years.

Table 7.4 gives the percentage power deficits in 1985/86 and 1989/90. It may be noted that there have been significant power shortages in the Northern Region in recent years. The shortages are somewhat less in Delhi/New Delhi (despite the rather high power consumption levels) owing to a policy of preferential power supply to consumers in Delhi/New Delhi. In fact, power is imported from the states of Haryana, Punjab, Rajasthan and UP to ensure that the power supply reliability in Delhi/New Delhi does not deteriorate too much. Consequently, the power shortages in these four states are rather high.#

As dg sets are used largely as standby sources of power generation, it is clear that the average generation (kWh per kW of installed capacity of dg set) levels achieved in the various states/UTs will be different -- and will tend to reflect the overall power supply situation in the state/UT. Similarly, the average generation levels achieved in one achieved state/UT in two different years will reflect the differences in the power supply situation in those two years -- provided the priorities for supplying power to various categories of consumers do not change significantly.*

Power shortages in Jammu and Kashmir are also high. This reflects to a certain extent, the high transmission and distribution loss levels in that state, plus an inadequate utility capacity situation.

* Industrial consumers are subject to the most severe power supply restrictions in several states. This practice has continued for more than a decade now.

Against this background, the average generation levels that are estimated to have been achieved in 1985/86 and 1989/90 for Category I, II and III consumers are given in Table 7.5.

From the concerned electric power utilities in the Northern Region, we were able to obtain only the total dg set capacity sanctioned as of 31 March 1989 and 31 March 1990. For analytical purposes, it may be assumed that the share of this capacity between consumers in Categories I, II and III has not changed significantly since 1985/86. With this assumption, the estimated installed dg set capacity in consumers of various categories (as of 31 March 1989 and 31 March 1990) are given in Table 7.6.

Again, as the number and total capacity of dg sets deployed changes with each passing month, the average capacity (averaged over that on 31 March 1989 and 31 March 1990) is used as a basis for estimating generation achieved in 1989/90. Further, as the average HSD consumption norm may be taken as 0.24 litre/kWh, the total HSD sales for standby power generation may be computed. The results of these computations are presented in Table 7.7.

It may be noted that UP alone accounted for about 55% of the HSD use for power generation in the Northern Region in 1989/90. This reflects both the large size of UP and its generally poor power supply situation. Haryana, another state where the power supply restrictions are particularly severe, accounted for 27% of HSD sales in the Northern Region for power generation in 1989/90.

It is important to realize that to the extent HSD is purchased by industrial/commercial establishments from ROs, it is largely for power generation. And this will change from year to year depending on the power supply situation.

7.4 Transport Sector

Given the total HSD sales through ROs in 1989/90 (as obtained from the oil industry and shown in Table 7.8), and the estimates of HSD sales to agricultural and industrial/commercial consumers (Tables 7.3 and 7.7 respectively), it may be inferred that the balance of HSD is sold to consumers in the road transport sector. Estimates of HSD sales in 1989/90 to road transport consumers are also given in Table 7.8.

It is clear from 7.8 that the road transport sector accounts for a very large share of total HSD sales through ROs. It is important however, to check if this observation is supported by the findings of the field survey and other relevant information.

The following information is required to ascertain the validity of the survey of HSD consumers in the transport sector

(i) estimated range of annual HSD consumption per vehicle, for each type of vehicle. This information is given in Table 3.18;

(ii) population of vehicles registered in each state/UT of the Northern Region, at the beginning and end of 1989/90. This information is given in Table 7.9; and

(iii) the fraction of registered vehicles which run on HSD. This is given in Table 7.11.

Regarding the data on vehicle registrations (Table 7.9) it is important to note that these exclude the vehicles registered with public road transport undertakings. Vehicles registered with such undertakings would in general, not purchase HSD from ROs. For analytical purposes, it is assumed that the share of vehicles (buses an LCVs) registered with public road transport undertakings do not change significantly from year to year -- and the available data on percentage of vehicles registered as of 31 March 1989 with public transport undertakings (given in Table 7.10) is assumed to hold true for 31 March 1990 as well.

On this basis, the lower and upper bounds of the likely range of HSD sales to road transport consumers may be arrived at. These estimates are presented in Table 7.12. Against, the average of the population of vehicles registered on 31 March 1989 and 31 March 1990 is used to arrive at HSD sales estimates given in Table 7.12.

A comparison of numbers for Haryana and UP in Table 7.8 and 7.12 reveal that our estimate of HSD sales to the transport sector users (derived as the balance of total HSD sales through retail and sales to agricultural plus industrial/commercial consumers) falls between the low and high ends of the estimates from the field survey. The former is marginally lower than the lower bound estimate for Rajasthan, and less than half for Delhi/New Delhi. This however, may reflect the fact a large number of trucks and LCVs registered in Delhi/New Delhi -- and to some extent in

Rajasthan as well -- travel outside the boundaries of the respective state/UT, and may be purchasing part of the fuel from there. The data given in Table 3.16 -- in comparison with the number of trucks and LCVs covered in the survey -- supports this observation.

It therefore seems that the field survey of transport consumers is also validated. Based on the analogies that may be drawn for states/UTs where the survey is not conducted, the relative weights that may be given to the low and high end estimates of HSD sales can be drawn. These "weights" are given in Table 7.13. Using these weights and the survey data, the benchmark annual HSD consumption levels per vehicle are derived, and presented in Table 7.14.

7.5 Seasonal Variations in HSD Sales

The discussion in Sections 7.2 through 7.4 indicates that the survey findings may be considered validated, for the agriculture and transport sectors, and can form a basis for making projections of HSD sales. For the industry/commercial sectors, the findings of a field survey conducted in 1986 may be considered reliable.

While the above discussion indicates that we have a reliable data-base regarding annual sales pattern of HSD, there is little so far to suggest that there is any firm basis for estmating the monthly break-up of HSD sales with any degree of reliability. Nevertheless, it is useful to identify the factors that influence HSD sales from month to month.

Regarding the agriculture sector, it is clear that HSD sales will be higher during the cropping seasons of Rabi and Kharif. The sales however, would relate to the power supply situation in the state as well as to the rainfall conditions. Likewise, factors which underlie the monthly variations in HSD consumption by industrial and commercial establishments are also spelt out in Chapter V. The linkage between power supplies to agriculture and HSD sales to industrial/commercial sectors is well established.

It is reasonable to assume that, in the event of elections, HSD sales to agricultural and industrial/commercial sector consumers will not be influenced significantly.

If at all there is any impact, it is likely to be on the transport sector -- for normal movement of people and freight items may be partly disrupted. From the field survey however, it is difficult to arrive at any firm conclusions regarding HSD sales to passenger and freight carrying vehicles -- the major reason being that the field survey was conducted during April through December 1990, a time when no elections were held.

However, it is important to note that it is likely that there is little variation in the utilization of vehicles from one month to another, except when owing to weather conditions, it becomes difficult to drive (refer to section 3.17).

7.6 Overview

Although the field survey was conducted in the first three quarters of 1990/91, it is not possible to validate the findings of the survey for the same year, as the required supporting information is not available, Consequently, as for the survey of MS consumers, the survey of HSD consumers can also be validated only for some prior time period (in this case, 1989/90).

It seems by and large, that the field survey has given reasonably consistent results. Table 7.15 gives the estimates of the shares of HSD sales to various categories of consumers in 1989/90.

For the Northern Region as a whole, it is estimated that the road transport sector accounted for about 79% of the total HSD sales through ROs, the agriculture sector accounted for approximately 15%, and the industry/commercial sector for the remainder. However, there are significant differences from one state/UT to another. In particular, the share of retail HSD sales in Punjab is estimated to be the highest to agricultural consumers (about 32%) and the least to road transport consumers (about 65%). This probably reflects that fact that substantial farm mechanization has occurred in Punjab -- and that HSD using equipment is used in great measure not only for irrigation, but also for land preparation, sowing etc.

The share of HSD sales to agricultural consumers in Haryana is next only to that in Punjab; and that to transport consumers is just a little more than that in Punjab. This is due largely to the poor power supply situation in Haryana -- which makes Haryana the state with the largest share of HSD going for (standby) power generation through the use of dg sets.

The only other state/UT where the transport sector accounts for less than 90% of the total HSD sales through ROs, is UP. Again, agriculture in certain parts of UP (particularly Western UP) is heavily mechanized and its power supply situation is also rather poor.

In Delhi/New Delhi, the share of HSD sales through ROs to road transport consumers is the maximum (nearly 99%). This reflects both low agricultural activity, and a good power supply situation -- which implies that industrial/commercial consumers need to use back-up sources of power generation much less frequently than in the other states/UTs of the Northern Region (A large number of commercial establishments in Delhi/New Delhi do deploy standby power generation sources even for power supply interruptions of short duration, but these generator sets run on kerosene).

However, as already mentioned earlier, there is little reason to believe that the sectoral shares of HSD sales in the various states/UTs, cannot change substantially from that shown in Table 7.15.

Table 7.1 : Agriculture -- GNI and GNC in 1989/90

	GNI	GNC
HAR	1.5772	1.5875
HP	1.7447	1.7169
JK	1.3050	1.4245
PUN	1.7502	1.7035
RAJ	1.2472	1.2008
UP		
-UP/HILL	1.4849	1.6771
-UP/WEST	1.3531	1.5720
-UP/OTH	1.0141	1.3927
CHD	N.A.	1.3667
DEL	1.1487	1.5355
Northern Region	1.3735	1.4123

Table 7.2 : Agriculture -- Factors to Account for Seasonal Differences in Water Requirements of Crops

	Factor (ratio)	Comments
HAR	1.22	For Kharif from Rabi
RAJ	1.12	For Kharif from Rabi
NAN	0.82	For Rabi from Kharif
UPP	0.82	For Rabi from Kharif

Source : Refer to Table 4.11.

Table 7.3 : Agriculture -- Estimates of HSD sales in 1989/90 (kilolitres)

HAR	127,278
HP	2,123
JK	1,810
PUN	403,375
RAJ	80,631
UP	390,784
CHD	1,233
DEL	3,658
Northern Region	1,010,891

Table 7.4 : Industry/Commerce -- Power Deficits in the Northern Region (%)

	1985/86	1989/90*
HAR	23.3	13.6
HP	0.4	0.6
JK	15.2	9.1
PUN	8.9	6.8
RAJ	7.4	11.9
UP	12.2	16.9
CHD	3.9	0.3
DEL	0.2	1.7

* Actually for 1987/88, which is believed to be the same as for 1989/90.

Source : Central Electricity Authority (Personal Communication).

Table 7.5 : Industry/Commerce -- Average Generation per kW of Installed dg set Capacity (kWh)

	1985/86			1989/90		
	Cat.I	Cat.II	Cat.III	Cat.I	Cat.II	Cat.III
HAR	1441.7	1259.0	1884.8	841.5	734.9	1100.1
HP	24.7	21.6	-	37.1	32.4	-
JK	940.5	821.3	-	563.1	491.7	-
PUN	550.7	480.9	719.9	420.7	367.4	550.1
RAJ	260.1	133.8	-	418.3	215.1	-
UP	608.1	828.4	1294.7	842.3	1147.5	1793.5
CHD	241.3	210.7	-	18.6	16.2	-
DEL	12.4	10.8	16.2	105.2	91.9	137.5

Table 7.6 : Industry/Commerce -- Installed Capacity of dg Sets ('000 kVA)

	As on 31 March 1989				As on 31 March 1990			
	Cat.I	Cat.II	Cat.III	Total	Cat.I	Cat.II	Cat.III	Total
HAR	183.5	233.4	158.3	575.2	194.8	247.7	168.0	610.5
HP	1.5	28.8	-	30.3	1.6	30.1	-	31.7
JK	13.3	23.0	-	36.3	13.9	24.0	-	37.9
PUN	159.3	172.7	144.7	476.7	166.5	180.5	151.2	498.2
RAJ	110.0	162.2	-	272.2	115.9	170.9	-	286.8
UP	258.8	179.9	341.1	779.8	270.4	188.0	356.5	814.9
CHD	0.8	1.6	-	2.4	0.8	1.7	-	2.5
DEL	52.7	57.2	47.8	157.7	54.4	59.0	49.4	162.8

Table 7.7 : Industry/Commerce -- Estimated HSD Use for Standby Power Generation in 1989/90 (kilolitres)*

HAR	98,967
HP	194
JK	3,685
PUN	41,241
RAJ	15,954
UP	203,421
CHD	8
DEL	3,389
Northern Region	366,859

* Assuming power factor = 0.8 (which is normally observed in Indian industry); and diesel consumption norm of 0.24 litres/kWh.

Table 7.8 : Transport Sector -- Estimates of Total HSD Sales From ROs and Sales to Road Transport Consumers in 1989/90 (kilolitres)

	Total HSD Sales	Estimated HSD Sales to Road Transport Consumers
HAR	710,467	484,222
HP	90,979	88,662
JK	103,077	97,582
PUN	1,257,215	812,600
RAJ	1,113,298	1,016,713
UP	2,579,197	1,984,992
CHD	17,152	15,911
DEL	679,396	672,349
Northern Region	6,550,781	5,173,032

Table 7.9 : Transport -- Number of Vehicles Registered●

	3W	Bus	Jeep	LCV	Truck	Car
A. Registrations as on 31 March 1989						
HAR	6,950	5,242	5,350	9,585	17,510	*
HP	1,040	2,790	4,400	10,596	#	*
JK	3,070	3,461	4,750	15,325	#	*
PUN	14,050	8,731	9,550	12,574	22,971	*
RAJ	13,080	6,791	29,800	10,102	32,716	*
UP	18,750	12,021	26,700	21,230	41,957	*
-UP/HILL	780	500	1,110	883	-	*
-UP/WEST	4,179	2,679	5,951	4,732	9,758	*
-UP/OTH	13,791	8,842	19,639	15,615	32,199	*
CHD	*	1,375	2,300	1,931	3,527	26,100
DEL	*	16,224	14,700	28,994	39,021	284,200
B. Registrations as on 31 March 1990						
HAR	7,724	5,575	5,650	10,579	18,621	*
HP	1,127	2,889	4,850	11,024	#	*
JK	3,555	3,710	5,212	16,546	#	*
PUN	16,589	9,285	10,509	13,878	24,430	*
RAJ	13,261	7,088	32,953	10,855	34.146	*
UP	20,249	13,131	28,686	24,333	45,828	*
-UP/HILL	842	546	1,193	1,012	-	*
-UP/WEST	4,513	2,927	6,394	5,424	10,657	*
-UP/OTH	14,894	9,658	21,100	17,897	35,171	*
CHD	*	1,462	2,277	2,131	3,751	26,173
DEL	*	16,922	14,722	31,126	40,701	304,223

● : Includes vehicles which purchase HSD from ROs only.

* : No vehicle runs on HSD; all use MS.

: Included in LCVs for analytical purposes. The survey data from Nainital district in UP is used for HP and JK. No trucks were covered in the field survey there -- as no trucks were seen by the investigators. For analytical purposes therefore, it is assumed that the annual fuel use by a truck in HP and JK is not significantly different from that in a LCV.

Table 7.10 : Transport -- Percentage of HSD using Vehicles Registered with Public Road Transport Undertakings

	Bus	LCV	Truck
HAR	38.51	0	0
HP	33.57	0.49	0
JK	21.34	19.42	0
PUN	21.93	0	0
RAJ	31.47	0	0
UP	39.74	0.78	0
CHD	19.92	0	0
DEL	20.75	0	0

Table 7.11 : Transport -- Fraction of Registered Vehicles Using HSD

	Car	3W	Jeep
HAR	0	0.045	0.677
HP	0	0	0.212
JK	0	0	0.194
PUN	0	0.045	0.677
RAJ	0	0.555	0.613
UP	0	0.056	0.672
CHD	0.002	0	0.677
DEL	0.002	0	0.389

Table 7.12 : Transport -- Lower and Upper Bound of Estimates of HSD Sales in 1989/90 (kilolitre)

	Low End	High End
HAR	256,889	553,674
HP	135,837	235,359
JK	189,634	326,979
PUN	358,129	771,490
RAJ	1,300,235	2,294,882
UP	1,543,064	3,590,414
CHD	124,476	220,097
DEL	1,416,120	2,499,381

Table 7.13 : Transport -- Weightage for Low and High End of HSD Sales Estimates from Field Survey (fraction)

	Weightage	
	Low End	High End
HAR	0.234	0.766
HP	0.653	0
JK	0.515	0
PUN	0	1.053
RAJ	0.782	0
UP	0.784	0.216
CHD	0.128	0
DEL	0.475	0

Table 7.14 : Transport -- Benchmark Estimates of Annual HSD Sales per Vehicle (litre/year)

	3W	Bus	Jeep	LCV	Truck	Car
HAR	3190.2	17512.0	2723.5	6423.4	17356.2	-
HP	-	9379.6	2717.0	5491.8	-	-
JK	-	7394.7	2142.0	4329.6	-	-
PUN	4033.4	20938.6	3380.6	7812.4	20881.9	-
RAJ	1324.6	13659.6	2208.6	5491.9	24295.1	-
UP						
-UP/HILL	1100.1	16956.0	5268.2	9625.2	-	-
-UP/WEST	1687.9	11946.9	1580.9	4087.2	11551.5	-
-UP/OTH	3376.7	19735.4	5380.4	18056.1	36284.2	-
CHD	-	3423.6	127.9	591.5	2651.6	106.1
DEL	-	12716.4	475.2	2196.9	9849.2	394.2

Table 7.15 : Share of HSD Sales to Various Categories of Consumers in 1989/90 (%)

	Agriculture	Industry/Commerce	Road Transport
HAR	17.91	13.93	68.16
HP	2.33	0.21	97.45
JK	1.76	3.57	94.67
PUN	32.08	3.28	64.63
RAJ	7.24	1.43	91.32
UP	15.15	7.89	76.96
CHD	7.19	0.05	92.77
DEL	0.54	0.50	98.96
Northern Region	15.43	5.60	78.97

VIII. ROAD TRANSPORT SECTOR -- HSD SALES FORECASTS

8.1 Introduction

In addition to arriving at benchmark estimates of annual HSD use per vehicle for each type of vehicle in each state/UT (Table 7.14), it is important to project the vehicle population before HSD sales can be forecast. HSD sales forecasts in the business-as-usual (BAU) and various other scenarios are presented below.

8.2 Vehicle Population (BAU Forecast)

As for MS using vehicles (Chapter VI), the objective here is to project the number of vehicles that will be registered in each state/UT of the Northern Region. These projections are based on the following data that are available : (i) time series sales and registration data for different types of vehicles, for each state/UT of the Northern Region, as well as for the entire nation; and (ii) projections of targets or manufacturing capability of various types of vehicles to the year 1994/95.

For 3-wheelers, jeeps and cars, some of which run on HSD, the projections of vehicle populations given in Chapter VI (Section 6.4) are used. It is important to take into account the percentage of HSD using 3-wheelers, jeeps and cars in the vehicle fleet. The percentage of HSD consuming 3-wheelers, jeeps and cars is given in Table 8.1.

However, the system of classification of various other HSD using vehicles in the registration and sales data is somewhat different. The sales data are disaggregated as heavy (HCV), trucks, buses and LCVs -- information by make of vehicle is also available; although from the available data, it is not possible to gauge the extent to which LCVs are used as mini-buses. On the other hand, the available registration data are not sufficiently disaggregated, and the same vehicles are classified as trucks, buses and "other" vehicles. In particular, some makes of LCVs are included in "trucks", while others are included in "other" vehicles. Moreover, the data on "buses" certainly includes mini-buses.

Owing to such inconsistencies in the systems of classification of vehicles in the registration and sales data, it is possible to estimate the attrition rates only from the combined population of all such vehicles. From the available data, it is estimated that the average attrition rate in any year, for all buses/mini-buses, trucks and LCVs (including tempos) is 2.11% of the number registered at the beginning of the year. This estimate is for the entire Northern Region, and the variation from one state/UT to another is not significant.

For future additions to the fleet of trucks, buses and LCVs, the only data available are : (i) the targets of total production of chassis for trucks and buses together, to the year 1994/95; and (ii) the targets of production of LCVs to the year 1994/95. Furthermore, past data on production and sales (in Northern Region states/UTs) show that : (i) 28% of all HCVs produced are sold in Northern Region states/UTs; of these, 69% are trucks and 31% are buses; and (ii) 22.5% of all LCVs produced are sold in the

Northern Region states/UTs. Nearly all LCVs sold in the Northern Region run on HSD -- as found from the field survey * -- although about 12% of the LCVs produced since the mid-1980s run on MS.

The targets of production of LCVs indicate a very large jump in the production levels from 1989/90 to 1990/91 -- an increase by about 45% from 48,400 to 70,000. However, past data show only moderate increases in the LCV production levels (from 6700 in 1975/76 to about 20,300 in 1980/81 and 36,700 in 1985/86). It is therefore likely that the production target for 1990/91 is not met, and for analytical purposes, it is assumed that the production of LCVs increases to 55,000 in 1990/91. Yet, it may very well be that the present production target of 115,000 LCVs in 1994/95 is achieved.

Past production data for HCVs (which includes trucks and buses) show that it is very likely that the official targets for 1990/91 through 1994/95 are achieved.

Production levels of HCVs and LCVs for the years 1995/96 through 2004/05 are projected on the basis of constant differences. Annual production levels of HCVs are projected to increase by 5000 each year to 2004/05, and of LCVs by 15000. Table 8.2 gives the projected production levels of HCVs and LCVs.

Table 8.3 gives the break-up of sales of heavy trucks, buses and LCVs to each state/UT of the Northern Region. This break-up is based on the sales data from 1965/66 to 1987/88.

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* The TERI investigators did not come across any MS using LCVs during the course of the survey. Several MS using LCVs also may have been converted to use HSD.

On the basis of attrition rates, production targets, percentage sales in the states/UTs of the Northern Region, and the share of buses and LCVs operated by public transport undertakings (Table 7.10), the total number of vehicles that are projected to be registered (and which will be purchasing HSD from ROs) can be computed. The details are given in Annexure VIII.1, and the population of registered vehicles is summarized in Table 8.4.

Table 8.4 shows that the number of heavy trucks, buses and LCVs registered in the Northern Region states/UTs is projected to increase more than three-folds from March 1990 to March 2005. The truck and LCV fleet is projected to increase faster than the bus fleet. This indicates the increasing demands on the road transport sector for carrying freight.

Likewise, the number of 3-wheelers, jeeps and cars is also projected to increase. The details are given in Annexure VIII.1.

8.3 BAU Scenario Forecasts

During the 1980s, the manufacture of high efficiency LCVs and jeeps was initiated. Fuel efficiency of trucks, buses and 3-wheelers is also reported to have improved. This trend is likely to continue.

For analytical purposes, it is assumed that the average fuel consumption of the entire (say) LCV fleet in each state/UT in the year 2004/05 will be the same as that of the best one today. Table 8.5 gives the overall average and best fuel consumption norm (in km/litre) for heavy trucks, buses, LCVs, 3-wheelers, jeeps and cars. For analytical purposes, a constant rate of change of fuel consumption norm is assumed for each vehicle type in each state/UT.

HSD sales are projected for each type of vehicle in each state/UT of the Northern Region. The detailed forecasts are given in Annexure VIII.2, and are summarized in Table 8.6. In the BAU Scenario, the total HSD sales to the road transport sector are expected to increase very rapidly from about 5.2 million kl (4.3 million tonnes or MMT) in 1989/90 to 14.3 million kl (11.8 MMT) in 2004/05 at the rate of about 7% per annum. This is despite the fact that the average fuel efficiency of the vehicle fleet is likely to keep on increasing during the time horizon under consideration. The growth of HSD sales from ROs to trucks and LCVs is even higher (exceeding 8% per annum until 2004/05), and indicates the need to switch to other modes of transport (like railways) for freight movement.

8.4 Low Vehicle Production (LVP) Scenario Forecast

In keeping with the inferences drawn from the BAU Scenario results, the low vehicle production (LVP) scenario is formulated. In this scenario, it is assumed that the annual production of vehicles beyond 1995/96 reduces considerably from BAU levels, but the share of sales to Northern Region states/UTs remain the same as in the BAU scenario. Table 8.7 gives the annual production levels for HCVs and LCVs. The underlying assumption in this scenario is that the freight carrying capability of the railways increases substantially over BAU levels.

Other attributes of the vehicle fleet (share of sales to the Northern Region states/UTs, attrition rates, average fuel consumption norms, annual fuel utilization rates etc.) are assumed to remain the same as in the BAU scenario. The details of vehicle registration levels and HSD sales forecasts are given in Annexure VIII.3 and VIII.4 respectively.

HSD sales projections in the LVP scenario are also summarized in Table 8.8. As per these projections, the HSD sales to road transport consumers in the Northern Region will increase from 5.2 million kl (4.3 MMT) in 1989/90 to about 12.8 million kl (10.6 MMT) in 2004/05. The overall reductions in annual HSD sales by 2004/05 is a little over 10% compared to BAU scenario levels. Nevertheless, the LVP scenario still represents a high growth rate (over 6% per annum) of HSD sales to road transport sector alone -- and indicates an urgent need to consider other ways of reducing HSD demand.

8.5 Price Effects

There are no reliable estimates of price elasticity of HSD demand in the road transport sector in India. Although the price of HSD did increase during the course of the present field survey, this increase was accompanied by real or/and perceived threats of HSD shortages, which led to an unusual HSD sales pattern. Consequently,' no meaningful information on the price elasticities could be gathered from the field survey.

Moreover, a large portion of the HSD sales in India are for freight transport. In particular, trucks are used for carrying goods over very long distances (500 km or more) which is uneconomical compared to the freight carrying costs by railways over the same distance. As a result, it is evident that a significant part of the HSD sales to road transport users indicates a "swing" demand for HSD. Consequently, it is not possible to use the price elasticities of HSD demand observed in other countries for India.

8.6 Fuel Conservation (FC) Scenario Forecast

The Inter-Ministerial Working Group (IMWG), in its report in 1983, identified several measures that could be taken towards reducing HSD consumption in trucks and LCVs. Some of the important ways of achieving this objective are : (i) by giving proper training to drivers and increasing their awareness on fuel efficient ways of driving; and (ii) by equipping workshops and way-side garages with properly trained mechanics and good quality spare-parts. While no estimates of the fuel savings potential from the latter are given in the IMWG (1983) report, upto 30% of HSD savings are claimed to be possible from better driving habits alone.*

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* The drivers do not get any formal training at present. Most truck drivers learn driving on-the-job as understudies (as helpers or cleaners). Similarly, mechanics also need not necessarily have received any formal training for the repair and maintenance of vehicles.

If it were possible to initiate steps in this direction during 1991, substantial progress could be made by the year 2004/05. For analytical purposes, it is assumed that only a 10% savings in HSD consumption would be possible by 2004/05, about 5% by the year 1999/2000, and about 1% by the year 1994/95. Estimated HSD consumption/sales to the year 2004/05 are given in Table 8.9. These estimates represent savings that could be achieved from LVP scenario levels.

Table 8.9 shows that the total HSD sales to road transport consumers is projected to increase to 11.5 million kl (9.5 MMT) in 2004/05. The estimated reduction in HSD sales, from LVP scenario levels will be about 1.28 million kl (a little over 1 MMT) in the year 2004/05. Even if the c.i.f. price of HSD remains at US$ 20/barrel in 2004/05, this represents an estimated savings of US$ 160 million (Rs 2900 million at an exchange rate of Rs 18/US$) in foreign exchange, by reduced level of import needs in 2004/05 alone.*

Considering that this level of foreign exchange can be saved by giving proper attention to fuel conservation measures in the Northern Region alone, it is evident that HSD conservation should be given a very high priority.

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* India is likely to remain a net oil importer until 2004/05 and beyond. Even if India has surplus HSD stocks, reduced levels of HSD consumption could lead to increases in foreign exchange earnings!

8.7 Alternative Fuels (AF) Scenario Forecast

The forecasts obtained so far show that even in the fuel conservation (plus LVP) scenario, the consumption of HSD is projected to grow rapidly in the Northern Region. Therefore, it is imperative that some substitutes for HSD are found.

However, so far, the use of substitute fuels, such as methanol in diesel engines, has not been considered seriously in India. The experience so far is limited to some experimental and field work conducted at various Institutes of Technology, to determine optimal technical conditions for substitution.

Much progress of course, has been made in this direction during the past decade or so, in USA, Europe and Japan. For instance, General Motors of USA is reported to have successfully adapted its 2-stroke diesel engine vehicles (buses) to burn methanol in a pseudo-compression-ignition mode. Other diesel engine manufacturers (such as Mercedes, MAN, Komatsu) have adopted the high-compression spark-ignition approach; and still others (for example, Volvo) have used duplicate injection systems with a diesel pilot flame. A notable feature of all these designs is that compared to conventional diesel engines, their particulate emissions are substantially less, while their potential thermal efficiencies are nearly the same. However, problems of long-term durability of the engine, and its lubrication are still being studied.

It appears a priori that India would benefit from making efforts to keep pace with recent technological developments regarding the use of methanol in diesel engines. India's potential energy resource endowments indicate that methanol production would not be a serious limiting factor. Even if India's vast coal resources are not considered, its natural gas prognostications (both in the offshore and onland areas) alone indicate that the resources are vast enough.

For purposes of making projections, it may be assumed that methanol substitutes only 1% of HSD consumption in 2004/05 in trucks, buses and LCVs. However, this also leads to significant reductions in HSD consumption -- by about 1 million kl (0.9 MMT) from FS scenario levels.

8.8 Overview

Considering that the share of HSD and other middle distillate, in the product demand mix, is anticipated to continue increasing over the next fifteen years, it becomes imperative to pursue measures towards reducing the consumption of HSD.

A variety of measures, including those which could be considered as long term transportation planning (and proper implementation of those plans) are needed.

Table 8.1 : Percentage of Registered 3-wheelers, Jeeps and Cars that Run on HSD

	3W	Jeep	Car
HAR	4.53	67.68	0
HP	0	21.29	0
JK	0	19.44	0
PUN	4.53	67.68	0
RAJ	55.49	61.31	0
UP	5.61	67.20	0
CHD	0	67.68	0.21
DEL	0	38.88	0.21

Table 8.2 : BAU Scenario -- Annual Production of HCVs and LCVs ('000)

	HCV	LCV
1990/91	80	55
1991/92	85	70
1992/93	90	85
1993/94	95	100
1994/95	100	115
1995/96	105	130
1996/97	110	145
1997/98	115	160
1998/99	120	175
1999/00	125	190
2000/01	130	205
2001/02	135	220
2002/03	140	235
2003/04	145	250
2004/05	150	265

Table 8.3 : Break-up of HCV and LCV Sales to States/UTs of the Northern Region (%)

	HCV Chassis#		
	Truck	Bus	LCV*
HAR	10.02	10.80	10.98
HP	3.37●	3.57	1.41
JK	8.01●	6.14	4.09
PUN	13.14	14.17	14.40
RAJ	14.34	9.62	8.87
UP	32.17	33.86	32.87
CHD	2.02	2.17	2.21
DEL	16.93	19.66	25.19
Northern Region	100	100	100

# 28.03% of total sales in the country are in the Northern Region.

* 22.52% of total sales in the country are in the Northern Region.

● As explained in Chapter VII, trucks will be included in LCVs for the purpose of forecasting HSD sales.

Table 8.4 : BAU Scenario -- Projections of Registrations of Various Types of Vehicles#

	As on 31 March 1990			As on 31 March 2005		
	HCV Truck	HCV Bus	LCV	HCV Truck	HCV Bus	LCV
HAR	18621	5575	10579	42886	12839	60921
HP	-	2889	11024*	-	5240	24697
JK	-	3710	16546*	-	9087	51511
PUN	24430	9285	13878	56262	21385	79919
RAJ	34146	7088	10855	66839	13875	50884
UP	45828	13131	24332	127560	36549	175677
CHD	3751	1462	2131	8638	3368	12273
DEL	40701	16922	31126	79179	32920	144729
Northern Region	167477	60064	120471	381363	135263	600610

# Projections for 3-wheelers, cars and jeeps are also given in Annexure VIII.1. Includes vehicles that will purchase HSD from ROs only.

* Includes trucks.

Table 8.5 : Average and Best Fuel Consumption Norms (km/litre)

	HCV Truck	HCV Bus	LCV	3-wheeler	Jeep	Car
A. Overall Average Fuel Consumption Norm (km/litre)						
HAR	3.49	3.91	7.45	9.50	10.45	*
RAJ	3.29	3.24	7.66	24.37	9.49	*
HAN	*	4.00	6.10	18.99	8.75	*
UPP	2.50	2.52	6.39	18.52	9.76	*
DEL	3.52	3.38	8.48	*	11.11	13.13
B. Best Fuel Consumption Norm (km/litre)						
HAR	3.61	3.93	7.59	9.50	11.95	*
RAJ	3.92	3.24	8.39	27.63	9.91	*
HAN	*	4.00	6.45	18.99	9.60	*
UPP	2.51	2.56	9.57	20.10	10.50	*
DEL	4.19	3.38	11.50	*	11.11	13.13

* No vehicle runs on HSD; all use MS.

Table 8.6 : BAU Scenario -- HSD Sales Forecast for Road Transport Sector (kilolitres)

	1989/90	1994/95	1999/00	2004/05
HAR	484,222	705,024	1001,014	1379,035
HP	88,662	112,539	146,141	190,196
JK	97,582	145,891	208,941	288,046
PUN	812,600	1183,251	1679,653	2315,789
RAJ	1016,713	1274,996	1622,765	2067,740
UP	1984,992	3223,653	4804,311	6716,815
CHD	15,911	21,727	28,817	37,316
DEL	672,349	841,402	1060,859	1322,768
Northern Region	5,173,032	7,508,484	10,552,501	14,317,525

Table 8.7 : LVP Scenario -- Annual Production of HCVs and LCVs ('000)

	HCV	LCV
1989/90	76.6	48.38
1990/91	80	55
1991/92	85	70
1992/93	90	85
1993/94	95	100
1994/95	100	115
1995/96	102.5	122.5
1996/97	105	130
1997/98	107.5	137.5
1998/99	110	145
1999/00	112.5	152.5
2000/01	113.75	156.25
2001/02	115	160
2002/03	116.25	163.75
2003/04	117.5	167.5
2004/05	118.75	171.25

Table 8.8 : LVP Scenario -- HSD Sales Forecast for Road Transport Sector (kilolitres)

	1994/95	1999/2000	2004/05
HAR	705,024	965,493	1,233,987
HP	112,539	141,598	171,573
JK	145,891	195,160	245,627
PUN	1,183,251	1,619,653	2,069,138
RAJ	1,274,996	1,573,370	1,861,353
UP	3,223,653	4,611,070	5,953,913
CHD	21,727	27,981	33,868
DEL	841,402	1,032,375	1,213,130
Northern Region	7,508,484	10,166,700	12,782,590

Table 8.9 : Fuel Conservation Scenario -- HSD Sales Forecasts for Road Transport Sector (kilolitres)

	1994/95	1999/2000	2004/05
HAR	697,974	917,218	1,110,588
HP	111,414	134,518	154,416
JK	144,432	185,402	221,064
PUN	1,171,418	1,538,670	1,862,224
RAJ	1,262,246	1,494,702	1,675,218
UP	3,191,416	4,380,517	5,358,522
CHD	21,510	26,582	30,481
DEL	832,988	980,756	1,091,817
Northern Region	7,433,398	9,658,365	11,504,331

IX. AGRICULTURE SECTOR -- HSD SALES FORECASTS

9.1 Introduction

As discussed in Chapter IV, HSD is used by agricultural consumers in tractors and diesel pumpsets. Tractors are used directly for various agricultural operations, as well as for transportation. Forecasts for HSD requirement for these two purposes are made separately. Likewise, HSD sales forecasts for use in diesel pumpsets for groundwater irrigation are also made.

Before HSD use by agricultural consumers can be quantified and projected, it is necessary to first project the extent of land area over which agricultural activity will take place to the year 2004/05, as well as the population of HSD using devices and their utilization levels.

9.2 Gross and Net Cropped Area

Time series data on gross cropped area (GCA) and net sown area (NSA) for the entire country are available from 1951/52 onwards to 1986/87. For the Northern Region alone, and for each state/UT in the region, relatively short time series data are readily available f(from 1978/79 to 1986/87).

From the national level data, it is evident that GCA has increased at the rate of : (i) 1.73% per annum from 1951/52 to 1959/60; (ii) 0.6% per annum from 1959/60 to 1969/70; (iii) 0.45% from 1969/70 to 1979/80; and (iv) 0.6% per annum from 1979/80 to 1986/87. The short term trend of the 1980s is used to project GCA to 1989/90 (and is used for the computations presented in Chapter

VII). The long term trend (from the early 1960s onwards) however, is that of a growth rate of about 0.5% per annum of GCA. This is used to project GCA to the year 2004/05 at the all-India level.

For the time period for which GCA data for the Northern Region are available (1978/79 to 1986/87), it is observed that the Northern Region accounted for 31 to 34% of the total GCA in the country, and its share centered around 32.75%. This is used to project the total GCA in the Northern Region to 2004/05.

Available data from 1979/80 to 1986/87 also indicate that the shares of states/UTs of the Northern Region in the Region's GCA are fairly stable, as shown in Table 9.1. These shares are used to project GCA for each state/UT. The detailed projections of GCA are presented in Annexure IX.1, and are summarized in Table 9.2.

A similar approach is used to project the net sown area (NSA). From the national level data, it is seen that the expansion of NSA has been slower than that of GCA (this implies that agricultural output has increased not as much by increasing the land area under cultivation, as much as by increasing the intensity of its use). Available data show that NSA increased at the rate of: (i) 1.35% per annum during the 1950s; (ii) 0.4% per annum during the 1960s; and (iii) 0.05% per annum during the 1970s and 1980s. The NSA is first projected to 1989/90 (from 1986/87) using the short term growth of 0.1% per annum, and then further on to 2004/05 at the long term trend of 0.05% per annum. Available data on the NSA in the Northern Region also show that its share of total NSA in the country centered around 29.7%. Further break-up of NSA in the Northern Region. The state/UT level is as per the shares given in Table 9.1 (which are also obtained from the available data). On this basis, the NSA is projected for each state/UT in the Northern Region. The projections are detailed in Annexure IX.1 and summarized in Table 9.2.

9.3 Gross and Net Irrigated Area

The data availability position regarding gross irrigated area (GIA) and net irrigated are (NIA) is the same as for GCA and NSA, at both the national level and for the Northern Region's constituent states/UTs.

From available data at the national level, it is observed that GIA has always increased faster than NIA. In particular, the average annual growth rates for GIA and NIA respectively have been : (i) 2.1% and 1.7% from 1951/52 to 1959/60; (ii) 3.0% and 2.3% from 1959/60 to 1969/70; (iii) 2.9% and 2.5% from 1969/70 to 1979/80; and (iv) 1.8% and 1.6% during the 1980s (from 1979/80 to 1986/87). The average annual growth rates observed during the 1980s are used to project GIA and NIA to 1989/90.

It is interesting to note that since the 1960s, the overall trend has been that of a declining rate of growth of GIA and NIA.* In line with this trend, GIA and NIA are assumed to grow at the rate of 1.1% and 1.0% per annum respectively during the 1990s and beyond to 2004/05.

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* The increase in growth rate of GIA and NIA in the 1960s compared to that of the 1950s is a reflection of the fact that massive rural electrification and pumpset energization programmes were initiated in the 1960s.

Disaggregated data at the regional level show that the Northern Region's share in the country's total GIA and NIA has centered around 49.7% and 46.9% respectively. This clearly highlights the dominance of the Northern Region on the nation's agricultural map. Further break-up of the Northern Region's GIA and NIA are as given in Table 9.1.

On the basis of the available information, GIA and NIA are projected at the state/UT level to 2004/05. The detailed projections are given in Annexure IX.2 and are summarized in Table 10.2.

9.4 Tractor Population (BAU Scenario)

As for HSD and MS using vehicles, the targets for tractor production to 1994/95 are available. These targets are projected to 2004/05, assuming that the production level each year increases by 10,000. Available information on tractors sales suggests that a little over 54% of the tractors produced in India are sold in the Northern Region alone. This forms the basis for projecting total tractors sales in the Region. Sales data also show that in the 1980s, about 18.83% of the tractors were sold in Haryana, 0.42% in Himachal Pradesh, 0.47% in Jammu and Kashmir, 31.43% in Punjab, 12.48% in Rajasthan, 36.15% in UP, 0.23% in Chandigarh, and none in Delhi/New Delhi. With this information, sales to each state/UT in the Northern Region is projected and presented in Table 9.3. The details are given in Annexure IX.3.

Registration and sales data from the 1980s shows that the average attrition rate for tractors is 6.1% per year of the total number registered at the beginning of the year. Given the sales data from year to year, as well as registration data for 31 March 1989, the number of tractors that will be registered each year to 2004/05 is projected. The details are given in Annexure IX.3 and summarized in Table 9.4.

As per these estimates, the number of tractors registered in the Northern Region is likely to exceed 1.5 million by the end of 2004/05. It may be noted that in making these projections, care is taken to assure that the number of tractors do not exceed the number of landholdings. The number of landholdings is obtained as the quotient of NSA and average landholding size.* These projections indicate that there is substantial scope of adding more tractors in the Northern Region beyond 2004/05, even in Punjab -- and certainly shows the low level of farm mechanization at present.

9.5 Population of Diesel Pumpsets

As discussed in Chapter IV, diesel pumpsets are used for groundwater irrigation, and that too as back-up for electric pumpsets to a significant extent. Therefore, if the power supply situation does not improve considerably from present day levels, it may very well be that all farmers who have an electric pumpset connection also have a diesel pumpset for standby use. As per present expectations, all states in the Northern Region will be fully electrified by the turn of the century -- in fact, Haryana and Punjab already are. Even if there are slippages in meeting rural electrification targets -- as is often the case with power sector projects -- it is reasonable to assume that the entire Northern Region will be fully electrified by the year 2004/05.

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* For analytical purposes, it is assumed that the average land holding size in 2004/05 is about 90% of that in 1980/81.

However, the number and utilization of diesel pumpsets will be limited by the groundwater potential. Table 9.5 gives the area over which groundwater pumping is possible, as estimated by the Central Groundwater Board (Government of India). Assuming that the average landholding size in 2004/05 will be 90% of that in 1980/81, the total number of diesel pumpsets that can possibly be in service is very large indeed. Instead, a reasonably conservative estimate of growth of population of diesel pumpsets is assumed. The detailed projections given in Annexure IX.4 and are summarized in Table 9.6.

These projections are based on the assumption that the average annual growth rate in the population of diesel pumpsets will continue to be the same as in the 1980s : (i) 6.2% in Haryana; (ii) 2.6% in Himachal Pradesh and Jammu & Kashmir; (iii) 3.2% in punjab; (iv) 5% in Rajasthan; and (v) 4.4% in UP. Table 9.6 shows that the number of diesel pumpsets will increase from the present level of less than 2 million to over 3.5 million. However, it is important to note that on the basis of groundwater potential (and the average land-holding size, if farmers are not to borrow from/lend to other farmers), the number of diesel pumpsets can rise to over 15 million!

9.6 BAU Scenario Forecasts

Projections of land area under cultivation and irrigation, and of tractor and diesel pumpset population form the basis for making HSD sales projections. From the survey, estimates are available on : (i) average land area over which one tractor or diesel pumpset operates; (ii) quantity of HSD required for operating them over one hectare of land for agricultural purposes; and (ii) in the case of tractors for transportation, quantity of HSD required over in cropping season.

It is clear from the discussion in section 9.4 that the land area over which one tractor operates for agricultural purposes in any state/UT is determined as the lesser of : (i) as obtained from the survey; and (ii) the ratio of NSA of the concerned state/UT to the number of tractors registered. Likewise, from section 9.5, it is clear that the land area over which a diesel pumpset is used to irrigate is the lesser of : (i) as obtained from the field survey; and (ii) the ratio of total area that can be irrigated considering the groundwater potential and the number of diesel pumpsets in use.

On this basis and other assumptions outlined in Chapter VII, the HSD requirement for tractors (for both agricultural purposes and transportation) and diesel pumpsets are projected. The detailed projections are given in Annexure IX.5 and are summarized in Tables 9.7 through 9.10. It may be noted that as per these projections, HSD requirement in the Northern Region increases from about 1.07 million kl (0.9 MMT) in 1990/91 to about 2.1 million kl

(1.7 MMT) -- at the rate of 5.6% annum. The share of tractors in HSD use remains high -- increases from 47.3% in 1990/91 to 51.9% in 2004/05 for agricultural purposes and from 23.4% to 26.2% for transportation. The generally low contribution of diesel pumpsets towards HSD requirements (29.2% in 1990/91 and declining to 21.9% in 2004/05) is simply a reflection of the fact that the basic assumption in this scenario is that there will be good rainfall throughout the time horizon under consideration.

9.7 Drought Conditions (DC) Scenario Forecast

However, the general experience in India is that good/normal rainfall does not usually occur each year for 10 to 15 years at a stretch. A "good rainfall year" is normally followed by a "less-than-normal rainfall year"; and one or two (or sometimes three) years in a decade may be considered as "drought years".

Using the HSD consumption norms (litres/hectare) of diesel pumpset operations under drought conditions (as given in Table 4.10), the HSD requirements for diesel pumpsets may be estimated. These will provide an upper bound for the level of HSD requirements for agriculture under drought conditions.

If all other assumptions remain the same as in the BAU scenario, then the HSD requirements for irrigation using diesel pumpsets will be as given in Table 9.11; and for tractors plus diesel pumpsets as given in Table 9.12. It may be noted that the HSD requirements for use of tractors would remain unchanged (as discussed in Chapter IV, section 4.4) from those given in Tables 9.7 and 9.8.

It is seen that in a drought situation, the HSD requirement for agricultural purposes in 1994/95 can be much more than in 2004/05 if rainfall is good. This is due entirely to increased use of HSD for groundwater irrigation. In drought conditions, the share of HSD requirements at the Regional level, for pumping alone is projected to account for 70% in 1994/95, about 67% in 1999/2000, and 64% in the year 2004/05. It is clear therefore that rainfall conditions are likely to have a very substantial impact on the demand pattern of agricultural consumers.

9.8 Low Tractor Production (LTP) Scenario Forecast

As for passenger and freight transport vehicles, an alternative scenario for tractor population is considered. In this scenario, it is assumed that the targets for tractor production beyond 1994/95 are lowered from BAU levels (section 9.4). In particular, it is assumed that from 1995/96 to 1999/2000, the annual production of tractors in the country increases by 5000; and from 2000/01 to 2004/05 by 2500. Assumptions regarding sales to Northern Region states/UTs are the same as for the BAU scenario (section 9.4). The projections of sales and registrations of tractors to the year 2004/05 are given in Annexure IX.6.

If all other conditions were to remain as in the BAU scenario, the level of HSD use in diesel pumpsets would not change from BAU levels. The projections for HSD use in tractors are given in Table 9.14 (for agricultural purposes) and Table 9.15 (for transportation purposes). Table 9.16 gives the projected total sales of HSD to agricultural consumers. The sales of HSD until 1994/95 will be exactly the same as in the BAU scenario.

Overall HSD sales/requirements are projected to increase from about 1.1 million kl (0.9 MMT) in 1990/91 to 2.15 million kl (1.8 MMT) at the rate of 5.1% per annum. The share of HSD use in diesel pumpsets however, remains low and declines from 29% in 1990/91 to 24% in 2004/05. This probably indicates that even in the low tractor production scenario, the population of tractors keeps on increasing at a faster rate than for diesel pumpsets.

9.9 Overview

The forecast of HSD sales to agricultural consumers clearly shows that tractors will continue to account for a major portion of their HSD requirements, provided the rainfall is normal. However, in a drought situation, the major portion of HSD requirements will be for groundwater pumping.

Table 9.1 : Share of Cropped and Irrigated Areas of Northern Region States/UTs (%)

	GCA	NSA	GIA	NIA
HAR	9.65	8.59	13.43	11.70
HP	1.67	1.38	0.62	0.49
JK	1.74	1.72	1.55	1.63
PUN	12.04	9.98	23.54	18.48
RAJ	31.63	37.21	14.90	16.41
UP	43.10*	40.97#	45.73+	51.03$
CHD	0.01	0.01	0	0
DEL	0.16	0.14	0.22	0.26
Northern Region	100	100	100	100

* Of which, 4.91% in UP/Hill, 47.5% in UP/West, and the remainder in UP/Others.

# Of which, 4.35% in UP/Hill, 44.89% in UP/West, and the remainder in UP/Others.

+ Of which, 4.28% in UP/Hill, 67.85% in UP/West, and the remainder in UP/Others.

$ Of which, 3.55% in UP/Hill, 61.73% in UP/West, and the Fremainder in UP/Others.

Source : FAI, op cit Ref. Table 4.5.

Table 9.2 : Projections for Cropped and Irrigated Area ('000 ha)

	1990/91				2004/05			
	GCA	NSA	GIA	NIA	GCA	NSA	GIA	NIA
HAR	5696	3588	3913	2481	8138	3615	4611	2880
HP	986	574	180	103	1063	579	212	120
JK	1025	720	452	347	1105	725	533	402
PUN	7100	4168	6858	3919	7652	4200	8081	4549
RAJ	18662	15541	4341	3480	20111	15658	5115	4041
UP	25425	17115	13321	10822	27401	17244	15697	12564
-UP/HILL	1249	745	571	384	1346	750	672	446
-UP/WEST	12079	7683	9039	6680	13017	7741	10651	7755
-UP/OTH	12098	8687	3758	3712	13038	8752	4373	4363
CHD	4	3	0	0	4	3	0	0
DEL	93	60	64	56	100	61	75	65
Northern Region	58992	41769	29129	21208	63574	42085	34324	24621

GCA : Gross Cultivated Area.
NSA : Net Sown Area.
GIA : Gross Irrigated Area.
NIA : Net Irrigated Area.

Table 9.3 : Production and Sales of Tractors

	1990/91	1994/95	1999/00	2004/05
Production	124000	165000	215000	265000
Sale to Northern Region	79739	106104	138256	170409
HAR	15017	19982	26037	32092
HP	334	444	579	713
JK	373	496	647	797
PUN	25059	33345	43450	53555
RAJ	9950	13240	17252	21264
UP	28824	38354	49977	61599
CHD	182	242	315	389
DEL	0	0	0	0

Source : ACMA (1990), op cit Ref. Table 6.1.

Table 9.4 : Projections of No. of Tractors Registered in Northern Region States/UTs

	As of 31 March			
	1990	1995	2000	2005
HAR	96225	148445	213561	287896
HP	2670	3687	5030	6606
JK	3050	4169	5657	7409
PUN	261160	321148	409988	519567
RAJ	66440	100317	142935	191804
UP*	220580	311127	429042	566564
CHD	1490	2035	2760	3614
DEL	-	-	-	-
Northern Region	651615	890929	1208973	1583459

* May be broken down further to UP/Hill, UP/West and UP/Other, as per shares of NSA to total UP.

Table 9.5 : Groundwater Potential ('000 ha)

HAR	1500
HP	50
JK	150
PUN	3500
RAJ	2000
UP	12000

Table 9.6 : Number of Diesel Pumpsets in Northern Region States/UTs

	As of 31 March			
	1990	1995	2000	2005
HAR	124551	168256	227297	307055
HP	906	1031	1172	1333
JK	647	736	837	952
PUN	360723	422457	494756	579429
RAJ	91305	116586	148868	190088
UP*	1281899	1592136	1977455	456026
CHD	0	0	0	0
DEL	0	0	0	0
Northern Region	1860031	2301202	2850385	3534883

* Split between UP/Hill, UP/West and UP/others in the same ratio as NIA.

Table 9.7 : BAU Scenario -- HSD Requirements for Tractors Used for Agricultural Operations (kilolitres)

	1990/91	1994/95	1999/00	2004/05
HAR	83944	120928	179169	248432
HP	1148	1515	2120	2858
JK	1087	1422	1979	2660
PUN	239846	288395	376090	468664
RAJ	32070	45419	66596	91885
UP	146655	196765	278531	377753
CHD	251	256	263	269
DEL	1702	2367	3431	4708
Northern Region	506702	657069	908179	1197231

Table 9.8 : BAU Scenario -- HSD Requirements for Tractors for Transportation Purposes (kilolitres)

	1990/91	1994/95	1999/00	2004/05
HAR	29931	42820	62900	86475
HP	678	888	1232	1647
JK	610	793	1094	1459
PUN	86976	103845	134242	172750
RAJ	33029	46447	67505	92332
UP	98990	132169	185181	248896
CHD	200	261	363	488
DEL	586	811	1167	1589
Northern Region	251000	328035	453685	605637

Table 9.9 : BAU Scenario -- HSD Requirements for Diesel Pumpsets (kilolitres)

	1990/91	1994/95	1999/00	2004/05
HAR	25752	32904	44699	60722
HP	410	457	522	596
JK	228	253	289	330
PUN	91925	104770	123379	145292
RAJ	22408	27366	35133	45104
UP	170538	203770	228440	251023
CHD	0	0	0	0
DEL	1636	1976	2244	2508
Northern Region	312898	371496	434706	505575

Table 9.10 : BAU Scenario -- HSD Requirements for Tractors and Diesel Pumpsets (kilolitres)

	1990/91	1994/95	1999/00	2004/05
HAR	139627	196653	286769	395629
HP	2237	2860	3874	5101
JK	1925	2469	3362	4450
PUN	418747	497011	633711	786707
RAJ	87506	119232	169234	229322
UP	416184	532704	692152	877672
CHD	451	518	626	758
DEL	3924	5154	6842	8805
Northern Region	1070601	1356601	1796570	2308444

Table 9.11 : Drought Conditions (DC) Scenario -- HSD Requirements for Diesel Pumpsets (kilolitres)

	1994/95	1999/00	2004/05
HAR	207661	282100	383223
HP	2884	3294	3761
JK	1597	1824	2083
PUN	661215	778659	916954
RAJ	172710	221728	284656
UP	1286015	1441710	1584234
CHD	0	0	0
DEL	12471	14162	15828
Northern Region	2344553	2743478	3190740

Table 9.12 : Drought Conditions (DC) Scenario -- HSD Requirements for Tractors and Diesel Pumpset (kilolitres)

	1994/95	1999/00	2004/05
HAR	371410	524170	718130
HP	5287	6646	8266
JK	3813	4897	6203
PUN	1053456	1288991	1558369
RAJ	264576	355829	468874
UP	1614949	1905422	2210883
CHD	518	626	758
DEL	15649	18760	22125
Northern Region	3329658	4105341	4993608

Table 9.13 : Low Tractor Production Scenario -- HSD Requirements for Tractors Used for Agricultural Operations (kilolitres)

	1999/00	2004/05
HAR	173066	222630
HP	2052	2571
JK	1916	2394
PUN	365050	441522
RAJ	64351	82397
UP	269492	339544
CHD	263	269
DEL	3317	4225
Northern Region	879506	1095553

Table 9.14 : Low Tractor Production Scenario -- HSD Requirements for Tractors for Transportation Purposes (kilolitres)

	1999/00	2004/05
HAR	60758	77494
HP	1193	1482
JK	1059	1313
PUN	130301	156236
RAJ	65231	82798
UP	178872	223722
CHD	352	440
DEL	1128	1426
Northern Region	438894	544911

Table 9.15 : Low Tractor Production Scenario -- HSD Requirements for Tractors and Diesel Pumpsets (kilolitres)

	1999/00	2004/05
HAR	278523	360846
HP	3766	4649
JK	3265	4038
PUN	618730	743051
RAJ	164714	210300
UP	676687	814288
CHD	615	709
DEL	6689	8159
Northern Region	1753106	2146039

X. INDUSTRIAL/COMMERCIAL SECTORS -- HSD SALES FORECASTS

10.1 Introduction

As discussed in Chapter V, the primary purpose of industrial and commercial establishments for purchasing HSD from ROs is for using their standby dg sets to generate power. However, it becomes necessary to use dg sets only in the event of power supply restrictions from the utility grid. Therefore, the power supply /demand outlook forms the basis for projecting HSD requirements of industrial and commercial consumers. The likely power situation over the next fifteen year period to 2004/05 is reviewed below.

HSD sales forecasts for standby power generation are also presented for various scenarios.

10.2 Power Supply/Requirement Position (BAU Scenario)

The power supply situation is characterized by significant shortages. The shortages are likely to continue in the foreseeable future unless adequate attention is paid towards : (i) implementing conservation and demand management measures in the various electricity consuming sectors; (ii) reducing transmission and distribution (T&D) losses in the utility grids from the present level of about 22%; and (iii) reducing power station (auxiliary) consumption, particularly in coal-fired thermal power stations from the present level of 10% of gross generation.*

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* Coal-fired thermal power stations comprise about 60% of the installed utility capacity. A reduction of auxiliary consumption from 10% to 7% of gross generation can lead to substantial additional power availability for final consumption. Not much significant potential exists for reducing auxiliary consumption levels in hydro power stations (1% of gross generation at present) and in gas-fired power plants (2%).

Reasonably definitive power system expansion plans and growth in power requirements are available only for Eighth FYP period (i.e. until March 1995). The energy requirement and availability position as per these projections are presented in Table 10.1. The energy requirement projections are taken from the Central Electricity Authority's Thirteenth "Electric Power Survey (EPS) of India" (1987). Although this report also projects the energy availability position, its projections are not considered realistic and are not given in Table 10.1. Instead, the energy availability projections in Table 10.1 are based on the more recent plans of power generation capacity expansion.# It may be noted that the power availability position projected in the Thirteenth EPS (1987) are based on the assumption that about 38000 MW of new generating capacity will be commissioned during the Eighth FYP period (1990/91-1994/95). However, as per present expectations, not more than 27000 MW to 28000 MW of capacity is likely to come on-stream during the Eighth FYP period. Consequently, the power deficits will be rather high.*

The most recent period for which firm data on the power deficits position are available is 1987/88. These data, along

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These energy availability projections are based on the assumption that the rainfall is normal, and that the output of hydro power stations is as per the design specifications. In fact, past experience shows that in a "less-than-normal-rainfall year", the output of thermal capacity is and can be enhanced to compensate to a great extent, the loss in generation from hydro capacity.

* In fact, if more recent energy requirement projections are considered (as have been made for the preparation of the Fourteenth EPS), the power deficits in 1994/95 will be even higher.

with Table 10.1, are used to interpolate the power requirement and availability positions from 1990/91 to 1993/94 in each state/UT of the Northern Region. The details are presented in Annexure X.1, and the projected per cent deficits are given in Table 10.2. It may be seen from Table 10.2 that power deficits are anticipated to increase in all states/UTs except UP. However, they will not disappear by 1994/95 even in UP. For the Northern Region as a whole, power deficits are expected to increase from 15.8% of the requirement in 1990/91 to 20.8% by 1994/95.

As the Northern Region has a unified grid, power is easily exchanged between its consitutent states/UTs. Therefore, it is very likely, that in actual practice, the power deficit situation in Delhi/New Delhi may well turn out to be less than that shown in Table 10.2, and in the states of Haryana, HP, UP etc., somewhat higher.

Owing to the fact that power exports and imports will occur between the states/UTs of the Northern Region, it is more meaningful to project power deficits at the Regional level only.* The estimated deficits (which are again based on available projections of power requirement and availability) in the Northern Region, from 1995/96 to 2004/05, are given in Table 10.3. It is again observed that power deficits are anticipated to increase from 21.6% of the projected energy requirements in 1995/96 to 27.5% in 2004/05.

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* Some inter-regional power exchanges also take place, but they are likely to remain small.

10.3 Installed Capacity and Utilization of Diesel Generating Sets

The HSD requirement for standby power generation will depend on the power situation (section 10.2) as well as the population -- or installed capacity -- of dg sets. The number or total kVA rating of all dg sets in place will in turn relate to economic growth in general, and industrial growth in particular.

For analytical purposes, it is assumed that the growth of installed dg set capacity will be about 8% per year. This is approximately the rate at which dg set capacity has increased since the mid-1970s, and is in line with present expectations of growth in the industrial sector. It is further assumed that the growth of dg set capacity installed in Category I, II and III establishments will be the same.

Table 10.4 gives the projected capacity of dg sets in use in each state/UT of the Northern Region until March 1995; and Table 10.5 gives the same at the regional level for March 1996 through March 2005. It is seen that the total installed capacity increases from 2440 MVA in March 1990 to 3585 MVA in March 1995; and further on to 7740 MVA by March 2005.

While the installed capacity of dg sets would relate to the growth taking place in the economy, their utilization would depend on the power supply position. Using the power deficit situation in 1985/86 and the capacity utilization of dg sets in that year as the norm (Table 10.6), the kWh per kW of installed dg set capacity is computed. The weighted average kWh/kW utilization levels over Category I, II and III industrial/commercial establishments are presented in Table 10.7.

It is interesting to note from Table 10.7 that the average utilization level of installed dg set capacity in the Region increases until the year 1998/99 and then begins to fall gradually even though the power deficits are still increasing. This is due to the fact that the installed capacity of generators is projected to increase faster (at 8% per annum) than the absolute level of power deficits; and reflects a situation of over-capitalization of power generating capacity in the Northern Region.

10.4 BAU Scenario Forecast

On the basis of the projections of installed capacity of dg sets in the Northern region and their utilization, the energy generation can be computed. The energy generation levels are presented in Table 10.8. It may be noted that the average of installed capacity (averaged over beginning and end of the year) is used for computing energy generation levels achieved in any year. Table 10.8 shows that even though the average capacity utilization of dg sets reduces beyond 1998/99, the total generation obtained from them keeps on rising. This reflects the fact that the overall deficit (energy/power requirement minus availability) keeps on increasing in absolute terms, even beyond 1998/99 -- as shown in Annexure X.1.

Given the fact that the HSD consumption norm is about 0.24 litres/kWh generated (as evident from the 1986 field survey; Table 5.5), the HSD requirements are computed. Table 10.9 gives the HSD requirements to the year 2004/05. Table 10.9 shows that HSD consumption for standby power generation in industrial/commercial establishments is expected to increase from 0.47 million kl (0.39 MMT) in 1990/91 to 1.44 million kl (1.19 MMT) in 2004/05, at the rate of 8.3% per annum. Considering that this effectively represents a swing demand for HSD (which is required only because of power supply shortages), efforts towards curbing it must be made. It is important to note that at even US$ 20/barrel also, HSD use for standby power generation would cost US$ 180 million (Rs 3250 million, at an exchange rate of about Rs 18/US$) in foreign exchange in the year 2004/05 alone.

10.5 Low T&D Loss (LTL) Scenario Forecast

One of the important ways in which HSD consumption in dg sets can be curbed is through a reduction in T&D losses. A reduction in T&D losses will make more energy available for final consumption -- even if the generation/supply stays at the same level as implicit in the BAU scenario. T&D losses however, can be reduced only if the power utilities make a concerted effort in this direction. The need to reduce T&D losses has been discussed often in official forums, although little has been achieved so far.

For analytical purposes, it is assumed that efforts reducing T&D losses are initiated during the Eighth FYP period itself, and lead to a reduction in the power deficit by 1% in each state/UT of the Northern Region by 1994/95. Continued efforts in this direction are further assumed to reduce the power deficit by 3% by the turn of the century (in the year 1999/2000) and by 5% by the year 2004/05. It may be noted that these are very conservative T&D loss reduction targets -- as T&D loss levels in several developing countries are now reported to be less than 10%, while in India's Northern Region, they are in excess of 22%.

Table 10.10 gives the estimated HSD requirements in the end that T&D loss levels can be contained. The HSD requirements for standby power generation increase, but at a lower rate than in the BAU Scenario, and reach a level of 1.37 million kl (1.13 MMT) by 2004/05. However, at a c.i.f. price of US$ 20/barrel, this still represents a US$ 172 million (Rs 2090 million, exchange rate of Rs 18/US$) worth of foreign exchange expenditure. This is also a very high level of HSD use in what is essentially a result of poor power sector performance.

10.6 Demand Management (DM) Scenario Forecast

In addition to improving the performance of utilities, there is substantial scope for implementing conservation and demand management measures in various consuming sectors. It is important to realize that electricity conservation measures implemented in any sector (for instance, residential, industrial, agricultural, street-lighting etc.) will lead to a reduction in the demand/requirement for electricity, and reduce the overall power deficit. This reduced power deficit will result in reducing the power generation from installed dg set capacity.

The efficiency of incandescent and fluorescent lamps, electric motors, pumps, compressors and other electrical equipment used in various electricity consuming sectors is much below the best available -- and established, commercially viable [illegible] technologies in the world. Consequently, it is expected that efforts will be made towards manufacturing and disseminating efficient electrical appliances and equipment in the coming decades.

For analytical purposes therefore, it is reasonable to assume that in the electricity demand management scenario, the power requirements reduce to the extent to lower the power deficit by a further 10% by 2004/05. In line with this, the power deficit may be assumed to reduce by 5% by 1999/2000 and by 1% by 1994/95. Table 10.11 gives the HSD requirements if demand management measures were to be implemented. In this scenario, the HSD consumption in dg sets increases to a little over 1.2 million kl (1.02 MMT) by 2004/05. This level of HSD consumption is still rather high and implies a financial drain of Rs 2780 million in foreign exchange in 2004/05 even if the c.i.f. price of HSD remains at US$ 20/barrel.

10.7 Overview

It is evident from the scenarios discussed in the preceding sections, that HSD requirement for power generation using dg sets is going to increase substantially over present levels. The main reason is that the power supply outlook is not very encouraging.

Reduction of T&D losses and implementation of demand management measures that are considered in the LTL and DM scenarios signify a major change in the trends observed in the past. Yet, the principal issue here is also of enhancing the power generation. This need not necessarily require additional generating capacity at the utilities command. Power generation can also be increased by enhancing the plant load factors of existing thermal power stations. However, this could lead to a reduction of the power deficit by a further 10 to 15%, but would not diminish it. In order to bridge the power requirement/ availability gap completely, it would be absolutely essential to increase the installed generating capacity faster than is envisaged in the three scenarios discussed above. This however, seems very unlikely at present, owing to severe financial constraints that the power supply industry is facing.

Table 10.1 : Electricity Requirement and Availability Position in 1994/95

	Energy Requirement (GWh)	Energy Availability (GWh)	Energy Deficit (GWh)	Energy Deficit (%)
HAR	12513	9031	3482	27.8
HP	2622	2603	19	0.7
JK	5051	3975	1076	21.3
PUN	20370	16052	4318	21.2
RAJ	19872	9921	9951	50.1
UP	40551	38288	2263	5.6
CHD	1076	1001	75	7.0
DEL	12731	9999	2732	21.5
Northern Region	114786	90870	23916	20.8

Source : Based on : (i) Central Electricity Authority, "Thirteenth Electric Power Survey of India," New Delhi, December 1987; (ii) Planning Commission (Personal Communications).

Table 10.2 : Estimated Power Deficits in the Eighth FYP Period (%)

	1990/91	1991/92	1992/93	1993/94	1994/95
HAR	20.0	22.0	24.0	25.9	27.8
HP	0.6	0.7	0.7	0.7	0.7
JK	14.6	16.3	18.0	19.7	21.3
PUN	13.3	15.3	17.3	19.3	21.2
RAJ	30.9	36.3	41.3	45.9	50.1
UP	12.2	10.6	8.9	7.3	5.6
CHD	3.2	4.2	5.1	6.1	7.0
DEL	10.7	13.5	16.3	18.9	21.5
Northern Region	15.8	17.1	18.4	19.6	20.8

Table 10.3 : Estimated Power Deficits in the Northern Region from 1995/96 to 2004/05

	% Deficits
1995/96	21.6
1996/97	22.4
1997/98	23.1
1998/99	23.8
1999/00	24.5
2000/01	25.1
2001/02	25.8
2002/03	26.4
2003/04	26.9
2004/05	27.5

Table 10.4 : Projected Installed Capacity of Diesel Generator Sets to 31 March 1995 (MVA)

	Capacity as on 31 March					
	1990	1991	1992	1993	1994	1995
HAR	610.5	659.4	712.1	769.1	830.6	897.1
HP	31.6	34.2	36.9	39.9	43.0	46.5
JK	37.9	40.9	44.2	47.7	51.5	55.7
PUN	498.2	538.0	581.1	627.6	677.8	732.0
RAJ	286.8	309.7	334.5	361.3	390.2	421.4
UP	814.9	880.1	950.5	1026.6	1108.7	1197.4
CHD	2.5	2.7	2.9	3.2	3.4	3.7
DEL	157.7	170.3	183.9	198.6	214.5	231.7
Northern Region	2440.1	2635.3	2846.2	3073.9	3319.8	3585.4

Table 10.5 : Projected Installed Capacity of Diesel Generator Sets to 31 March 2005 (MVA)

As on 31 March	dg set Capacity Installed (MVA)
1996	3872.2
1997	4182.0
1998	4516.5
1999	4877.8
2000	5268.1
2001	5689.5
2002	6144.7
2003	6636.2
2004	7167.1
2005	7740.5

Table 10.6 : Baseline Annual Utilization of Diesel Generators and Power Deficits (1985/86)

	Utilization (kWh/kW)	Deficit (%)
HAR	1489.5	23.3
HP	21.8	0.4
JK	865.0	15.2
PUN	576.8	8.9
RAJ	184.9	7.4
UP	959.3	12.2
CHD	220.9	3.9
DEL	13.0	0.2
Northern Region	813.6	10.7

Table 10.7 : Projections of Annual Utilization of Diesel Generators (kWh/kW of Installed Capacity)

	1990/91	1991/92	1992/93	1993/94	1994/95
HAR	1277.7	1407.8	1534.6	1658.3	1778.7
HP	34.7	36.0	37.4	38.7	40.0
JK	829.0	927.8	1024.6	1119.4	1212.3
PUN	860.8	993.7	1123.3	1250.0	1373.6
RAJ	773.0	907.4	1031.3	1145.5	1250.9
UP	959.2	832.6	703.7	572.4	438.8
CHD	182.2	236.6	290.5	343.8	396.5
DEL	693.7	876.4	1053.3	1224.6	1390.6
Northern Region	1199.3	1300.8	1398.7	1493.1	1584.3

	1995/96	1996/97	1997/98	1998/99	1999/00
Northern Region	1129.8	1130.3	1126.7	1119.3	1108.1

	2000/01	2001/02	2002/03	2003/04	2004/05
Northern Region	1093.5	1075.7	1054.7	1030.8	1004.1

Table 10.8 : BAU Scenario -- Energy Generation from DG Sets (GWh)

	1990/91	1991/92	1992/93	1993/94	1994/95
HAR	649.0	772.3	909.2	1061.1	1229.2
HP	0.9	1.0	1.1	1.3	1.4
JK	26.1	31.6	37.7	44.4	52.0
PUN	356.8	444.8	543.1	652.6	774.6
RAJ	184.5	233.8	287.0	344.3	406.1
UP	650.4	609.7	556.5	488.9	404.7
CHD	0.4	0.5	0.7	0.9	1.1
DEL	91.0	124.2	161.2	202.4	248.2
Northern Region	1959.0	2217.9	2496.6	2796.0	3117.3

	1995/96	1996/97	1997/98	1998/99	1999/00
Northern Region	3370.3	3641.5	3920.3	4205.9	4497.2

	2000/01	2001/02	2002/03	2003/04	2004/05
Northern Region	4793.1	5091.9	5392.0	5691.4	5987.4

Table 10.9 : BAU Scenario -- Annual HSD Requirements (kilolitres)

	1990/91	1991/92	1992/93	1993/94	1994/95
HAR	155759	185355	218220	254661	295014
HP	219	246	275	308	344
JK	6270	7579	9039	10665	12475
PUN	85632	106752	130340	156633	185895
RAJ	44270	56122	68888	82641	97460
UP	156085	146325	133563	117339	97132
CHD	92	129	171	218	272
DEL	21840	29800	38680	48570	59563
Northern Region	470167	532308	599176	671036	748154

	1995/96	1996/97	1997/98	1998/99	1999/00
Northern Region	808876	873956	940868	1009409	1079331

	2000/01	2001/02	2002/03	2003/04	2004/05
Northern Region	1150334	1222061	1294090	1365924	1436984

Table 10.10 : LTL Scenario -- Annual HSD Requirement (kilolitres)

	1990/91	1991/92	1992/93	1993/94	1994/95
HAR	155759	184892	217129	252751	292064
HP	219	245	274	306	341
JK	6270	7560	8994	10585	12350
PUN	85632	106485	129688	155458	184036
RAJ	44270	55982	68544	82021	96485
UP	156085	145959	132895	116459	96161
CHD	92	129	170	216	269
DEL	21840	29726	38487	48206	58967
Northern Region	470167	530977	596180	666003	740672

	1995/96	1996/97	1997/98	1998/99	1999/00
Northern Region	797552	858225	920169	983164	1046951

	2000/01	2001/02	2002/03	2003/04	2004/05
Northern Region	1111223	1175623	1239738	1303091	1365135

Table 10.11 : DM Scenario -- Annual HSD Requirement (kilolitres)*

	1990/91	1991/92	1992/93	1993/94	1994/95
HAR	155759	184430	216043	250856	289143
HP	219	244	273	304	338
JK	6270	7541	8949	10506	12227
PUN	85632	106219	129040	154292	182196
RAJ	44270	55842	68201	81406	95520
UP	156085	145594	132231	115586	95199
CHD	92	128	169	214	266
DEL	21840	29652	38295	47844	58377
Northern Region	470167	529650	593199	661008	733265

	1995/96	1996/97	1997/98	1998/99	1999/00
Northern Region	785589	841060	892564	943837	994603

	2000/01	2001/02	2002/03	2003/04	2004/05
Northern Region	1044550	1093329	1140559	1185813	1228622

XI. SUMMARY AND CONCLUSIONS

11.1 Introduction

Projections for MS and HSD sales from retail outlets in the Northern Region are presented in Chapters VI through X.

The MS sales projections are made for each type of vehicle for each state/UT to the year 2004/05. So are HSD sales to road freight and passenger transport users. Similarly, HSD sales to agricultural users are projected for tractors and diesel pumpsets separately, for each state/UT of the Northern Region. However, owing to the fact that substantial inter-state/UT power exchanges may take place, the HSD sales projections for standby power generation by industrial/commercial establishments are made at the state/UT level only until 1994/95, a time period for which reasonably firm forecasts of power supply and requirement are available. For 1995/96 and beyond, the HSD sales projections are at the regional level only.

The projections are as per various scenarios of vehicle production, fuel conservation, power supply situation etc. and provide some insight into the benefits that may be achieved (in terms of savings on fuel costs) from pursuing different strategies.

The forecasts are based on information gathered from a field survey, as well as other data available from official sources. The field survey is conducted in six selected districts of Haryana, Rajasthan and UP, as well as in Delhi/New Delhi. A total of 30962 MS and HSD consumers (who visited selected ROs during the course of the survey) were intereviewed. Of these, only 18362 consumers could give reasonably meaningful and useful responses. These 18362 responses form the baseline data for making MS and HSD sales forecasts.

11.2 MS Sales Forecasts

Table 11.1 summarizes the regional MS sales forecasts to 2004/05. According to the BAU scenario, MS sales are projected to increase at the rate of : (i) 9.55% per annum from 1989/90 to 1994/95; (ii) 7.77% per annum from 1994/95 to 1999/2000; and (iii) 6.82% per annum during the five year period to 2004/05.

The declining growth rate is essentially a reflection of the facts that : (i) some improvement in the overall fuel efficiency of the vehicle fleet (a trend which has already set in) is assumed to continue over the time horizon under consideration; and (ii) the rate of growth of vehicle production falls although in absolute terms, the vehicle production increases by the same volumes each year. Despite the declining growth rate, MS sales are projected to more than tripple during the fifteen year period, from 1.5 million kl in 1989/90 to 4.8 million kl in 2004/05.

If the production and availability of 2-wheelers, 3-wheelers, cars, jeeps and taxis were to reduce from BAU levels, efforts at improving the fuel efficiency of new vehicles were to accelerate beyond that already implicit in the BAU forecast, and alternative fuels were to be popularized, the MS sales are projected to reduce significantly below BAU levels. The detailed impacts of pursuing the three MS consumption reducing strategies are discussed in Chapter VI. Briefly, they would lead to a growth in MS sales to the tune of 5.0% per annum from 1989/90 to 2004/05, with the rate of growth in the last five year interval (1999/00 to 2004/05) being only 1.64% per annum.

In absolute terms, if the border price of MS were to remain at US$ 22/barrel, the savings in terms of reduced MS imports* (compared to BAU levels) will be : (i) US$ 9.8 million (Rs 177 million) in 1994/95; (ii) US$ 76.8 million (Rs 1383 million) in 1999/2000; and (iii) US$ 228.9 million (Rs 4120 million).

It is clear therefore, that considerable savings in foreign exchange can be achieved if MS conservation strategies are pursued.

11.3 HSD Sales Forecasts

Table 11.2 presents for the Northern Region the HSD sales forecasts (through retail) for road transport, agricultural and industrial/commercial consumers to the year 2004/05. It may be noted that the HSD requirement for agricultural consumers in a "good rainfall year" only are included in Table 11.2.

The share of road transport in total HSD sales is projected to remain between 78% to 79% to the year 2004/05 under all scenarios. The share of agricultural consumers is likely to remain between 13% to 14%; and of industrial/commercial consumers between 7.5% to 8.5%.

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* Or earnings from MS exports, if India were to be surplus in MS.

In absolute terms, the HSD sales levels are projected to increase in the BAU scenario, from 6.6 million kl in 1989/90 to 18.1 million kl in 2004/05, at the rate of 7% per annum. In fact, the growth rate of HSD sales is expected to decline from about 8% in the 1989/90 to 1994/95 period, to 6.9% from 1994/95 to 1999/2000, and further on to 6.1% during the 1999/2000 to 2004/05 period. This is due to reasons similar to the decline in growth rate of MS sales (as discussed in section 11.2) and as detailed in Chapter VIII for the road transport sector and Chapter IX for the agricultural sector. It may be noted that owing to rising power shortages, the growth rate of HSD requirements (in the BAU Scenario) of industrial/commercial consumers increases in each successive five-year interval. However, the share/contribution of this category of consumers in total HSD sales is rather low (rises from 7.8% in 1994/95 to 8.3% in 2004/05) and does not influence the overall trend -- that of a declining growth rate.

HSD sales projections in the other scenarios (low vehicle production, fuel conservation, low power deficits etc.) show that total HSD sales increase at the rate of 5.6% per annum from 6.6 million kl in 1989/90 to reach a level of 14.9 million kl by 2004/05. Again, a declining rate of growth of HSD sales is observed, and for the same reasons as discussed above.

If drought conditions were to occur, the total requirement for HSD becomes very large indeed. Even if the impacts on decrease in power generation are not considered*, it is estimated that the additional HSD requirements for groundwater irrigation using diesel pumpsets increase by about 2 million kl in 1994/95, 2.3 million kl in 1999/2000 and 2.7 million kl in 2004/05.

Even if the border price of HSD were to remain at US$ 20/barrel until 2004/05, it is estimated that the savings in foreign exchange possible due to a reduction in vehicle numbers, increases in their fuel efficiency, reduction in power system T&D losses and demand management for electricity consumers will be#:

(i) US$ 11.3 million (Rs 204 million) in 1994/95;
(ii) US$ 128.6 million (Rs 2315 million) in 1999/2000; and
(iii) US$ 400.5 million (Rs 7209 million) in 2004/05.

Further, if it were somehow possible to eliminate power supply deficits completely, the HSD requirements in the industrial/commercial sector for standby power generation will diminish. This will lead to still more savings in foreign exchange, to the tune of :

(i) US$ 92.2 million (Rs 1660 million) in 1994/95;
(ii) US$ 125.2 million (Rs 2254 million) in 1999/2000; and
(iii) US$ 154.6 million (Rs 2783 million) in 2004/05.

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* For the share of hydro capacity in the Northern Region is less than 33% at present, and is likely to decline further. Moreover, during "drought years", the loss in generation from hydro power stations is made-up to a great extent by increasing the output of coal, oil and gas fired thermal power stations. It may be noted that the basic projections of energy availability in future are based on normal rainfall and normal thermal power operation conditions.

# Assuming an exchange rate of Rs 18/US$.

In fact, as diesel pumpsets are also used largely by farmers who already have electric pumpsets, a significant improvement in the power supply situation would also mean that HSD use in diesel pumpsets become negligible. This would result in a further savings in HSD requirements*, as follows:

(i) US$ 46.7 million (Rs 841 million) in 1994/95;
(ii) US$ 54.7 million (Rs 985 million) in 1999/2000; and
(iii) US$ 63.7 million (Rs 1147 million) in 2004/05.

In other words, it is estimated that the likely savings in foreign exchange if HSD use as a "swing" fuel is eliminated, will be:

(i) US$ 138.9 million (Rs 2500 million) in 1994/95;
(ii) US$ 179.9 million (Rs 3238 million) in 1999/2000; and
(iii) US$ 218.3 million (Rs 3929 million) in 2004/05.

However, if a drought were to occur, the HSD requirements would increase immensely. The increased HSD requirements of agricultural consumers would lead to extra foreign exchange requirements for HSD imports# estimated at :

(i) US$ 248.1 million (Rs 4466 million) if 1994/95 were to be a drought year;
(ii) US$ 290.4 million (Rs 5227 million) if 1999/2000 were to be a drought year; and
(iii) US$ 337.9 million (Rs 6082 million) if 2004/05 were to be a drought year.

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* Excluding HSD savings in tractors to the extent farmers use tractors only to visit ROs to purchase HSD (Chapter IV).

# Or equivalently, a loss in foreign exchange earnings from reduced HSD exports (if India were to be surplus in HSD).

These are very heavy expenditure requirements for overcoming the affect of a "drought". Little can be done to avoid the incidence or occurrence of a "drought". However, efforts can and should be made to minimize the economic implications of droughts. Perhaps the best strategy is to bridge the gap between demand and supply of power (in order to reduce HSD requirements for groundwater irrigation).

11.4 Overview

It is clear that MS and HSD sales in the Northern Region will grow rapidly during the next fifteen period, and impose a heavy burden on the nation's scarce foreign exchange resources, unless of course, efforts are made towards containing this growth.

As the road transport sector will account for nearly all MS sales and nearly 80% of HSD sales (unless a drought occurs), it is imperative that adequate emphasis be laid on this sector. A three-pronged approach is recommended :

(i) to rationalize the inter-modal mix of passenger and freight traffic;
(ii) to further improve the fuel efficiency of passenger and freight carrying vehicles; and
(iii) to explore for the possibility of developing and using alternative fuels.

HSD is also used to a large extent as a swing fuel. This consumption arises due to the poor power supply situation in the country, when : (i) industrial and commercial establishments install and use standby dg sets to mitigate the impacts of power supply restrictions; and (ii) farmers use diesel pumpsets for groundwater irrigation. The need to minimize (or possibly eliminate) the use of HSD as a "swing" fuel is highlighted when the requirements of HSD increase substantially during periods of drought. In fact, unless this is done, it may very well be that foreign exchange constraints limit the availability of HSD to farmers when they need it most.

Table 11.1 : MS Sales Forecasts ('000 kl)

	MS Sales
1989/90	1503
1994/95	2301 to 2372
1999/00	2884 to 3439
2004/05	3128 to 4782

Table 11.2 : HSD Sales Forecasts ('000 kl)

	1989/90	1994/95	1999/00	2004/05
Road Transport	5173	7433 to 7508	9658 to 10552	11504 to 14317
Agriculture	1011	1357	1753 to 1797	2146 to 2308
Industry/ Commerce	367	733 to 748	995 to 1079	1229 to 1437
Total	6551	9523 to 9613	12406 to 13428	14879 to 18062

Annexure II.1 : Questionnaire for Road Passenger Transport Consumers

A. (General Information)

** 1. Name of Retail Outlet ____________________

** 2. Address of Retail Outlet ____________________
____
____

** 3. Type of Vehicle

Jeep	__________
Ambulance	__________
School Bus	__________
Mini Bus	__________
Other Bus	__________
Car	__________
Taxi	__________
2-wheeler	__________
3-wheeler	__________
Any other vehicle	__________

** 4. Type of travel being undertaken

Inter-city ____________________

Rural areas ____________________

Intra-city (within city or town) ____________________

** 5. Age of Vehicle

0-1 year	__________
1-2 years	__________
2-3 years	__________
3-5 years	__________
5-7 years	__________
7-10 years	__________
10-15 years	__________
15-20 years	__________
more than 20 years	__________

Note : (a) FOR ALL VEHICLES, TURN TO SECTION B.

(b) FOR OWNER DRIVEN CARS/JEEPS/2-WHEELERS, TURN TO SECTION C.

Annexure II.1 Contd.

B. FOR ALL VEHICLES

** 1. What fuel do you use : Petrol/Diesel

** 2. Make of Vehicle : ____________

** 3. How many inter-city/town trips (one-way) has the vehicle made:

in last 1 month ____________

in last 3 months ____________

** 4. Average distance the vehicle travels per day
0-50 km ______
50-100 km ______
100-200 km ______
200-300 km ______
300-400 km ______
400-500 km ______
500-600 km ______
over 600 km ______

** 5. On the average, for how many hours is the vehicle used per day

0-3 hrs ______
3-6 hrs ______
6-9 hrs ______
9-12 hrs ______
12-15 hrs ______
over 15 hrs ______

** 6. Average fuel consumption __________ km/litre

** 7. Average quantity of fuel used

	Per day	Per week
litres	__________	__________
Rs	__________	__________

Annexure II.1 Contd.

8. Number of days the vehicle has been used in the last month

less than 3 days ________
3-6 days ________
6-9 days ________
9-12 days ________
12-15 days ________
15-20 days ________
20-25 days ________
more than 25 days ________

* 9. Number of days the vehicle has been used in the last 3 months

less than 10 days ________
10-20 days ________
20-30 days ________
30-40 days ________
40-50 days ________
50-60 days ________
60-70 days ________
70-80 days ________
more than 80 days ________

* 10. On the average, after how many days do you refuel ________

* 11. On the average, how much fuel do you fill each time ________ litres
________ Rs

* 12. On the average, how many passengers travel in the vehicle _____

* 13. In which month is the vehicle used :

maximum ______________

minimum ______________

Annexure II.1 Contd.

C. For owner driven cars/jeeps/2-wheelers only

** 1. Would you shift to public modes of transport for travel if they were :

cheaper	Yes/No
more reliable	Yes/No
less crowded	Yes/No
faster	Yes/No
any two of the above	Yes/No
any three of the above	Yes/No
all of the above	Yes/No
any other reason (Please specify)	______________

Annexure II.2 : Questionnaire for Road Freight Transport Consumers

A. (General Information)

** 1. Name of Retail Outlet ____________________

** 2. Address of Retail Outlet ____________________

____

____

** 3. Type of Vehicle
LCV goods carrier __________
Truck __________
Tempo __________
Jeep __________
Car __________
Taxi __________
3-wheeler __________
Any other vehicle __________

** 4. Type of travel most often undertaken

Inter-city __________ (SECTION B & C)

Rural areas __________ (SECTION B)

Intra-city (within city or town) __________ (SECTION B)

** 5. Age of Vehicle
0-1 year __________
1-2 years __________
2-3 years __________
3-5 years __________
5-7 years __________
7-10 years __________
10-15 years __________
15-20 years __________
more than 20 years __________

Annexure II.2 Contd.

B. FOR ALL VEHICLES

NOTE: ALL QUESTIONS RELATE TO THE VEHICLE, AND NOT TO THE PARTICULAR DRIVER WHO IS BEING INTERVIEWED.

** 1. What fuel do you use : Petrol/Diesel

** 2. Make of Vehicle : __________

** 3. How many inter-city/town trips (one-way) the vehicle makes

in last one month __________

in last three months __________

** 4. Average distance travelled per day

0-50 km __________
50-100 km __________
100-200 km __________
200-300 km __________
300-400 km __________
400-500 km __________
500-600 km __________
600-700 km __________
700-800 km __________
800-900 km __________
900-1000km __________
more than 1000 km __________

** 5. On the average, how many hours per day does the vehicle operate

0-3 hrs __________
3-6 hrs __________
6-10 hrs __________
10-15 hrs __________
15-20 hrs __________
20-24 hrs __________

** 6. Average fuel consumption __________ km/litre

** 7. Average quantity of fuel consumed

	Per day	Per week
litres	__________	__________
Rs	__________	__________

Annexure II.2 Contd.

* 8. No. of days the vehicle has been in use in the last month

0-3 days ________
3-6 days ________
6-9 days ________
9-12 days ________
12-15 days ________
15-20 days ________
20-25 days ________
more than 25 days ________

* 9. No. of days the vehicle has been used in the last 3 months

less than 10 days ________
10-20 days ________
20-30 days ________
30-40 days ________
40-50 days ________
50-60 days ________
60-70 days ________
70-80 days ________
more than 80 days ________

* 10. On the average, after how many days do you refuel __________

* 11. On the average, how much fuel do you fill each time __________

* 12. What is the tonnage of the freight being carried now __________

* 13. What is the rated tonnage carrying capacity ______________

* 14. What freight are you carrying now ________________

* 15. What other freight items do you normally carry ____________

* 16. Is your vehicle often overloaded Yes/No

* 17. Do you ever make any empty trips Yes/No

Annexure II.2 Contd.

* 18. If yes, what fraction of the distance travelled is an empty trip

less than 10% __________
10-20% __________
20-30% __________
30-40% __________
40-50% __________
more than 50% __________

* 19. In which month is the vehicle used :

maximum ______________

minimum ______________

C. For Inter-City Freight Transport Only

** 1. Name the cities, towns and districts between which you often carry freight

____________________ ____________________

____________________ ____________________

____________________ ____________________

____________________ ____________________

Annexure II.3 : Questionnaire for Agricultural Consumers

A. GENERAL INFORMATION

NOTE : BEFORE ASKING ANY QUESTIONS, PLEASE ASCERTAIN THAT THE INVESTIGATIONS PERTAIN ONLY TO HSD (GREEN OIL) AND NOT LDO (BLACK OIL, OR ALSO COMMONLY KNOWN AS CRUDE OIL). THE QUESTIONS SHOULD BE ANSWERED ONLY FOR HSD USE.

** 1. Name and Address ____________________

of Retail Outlet ____________________

____

____

** 2. Did you purchase HSD for :

Tractor Yes/No

Diesel pump Yes/No

** 3. Do you own a tractor Yes/No

own a diesel pump Yes/No

** 4 (i) If you own a tractor, then do you lend it to other farmers for their use : Yes/No

(ii) If yes, then is it occasional lending/routine lending

(iii) If routine lending, then to how many farmers __________

** 5 (i) If you own a diesel pumpset, then do you lend it to other farmers for their use : Yes/No

(ii) If yes, then is it occasional lending/routine lending

(iii) If routine lending, then to how many farmers __________

NOTE : (a) TURN TO SECTION B AND C FOR ALL AGRI. CONSUMERS.

(b) TURN TO SECTION D ONLY IF THE ANSWER TO 4(i) OR 5(i) OR BOTH IS YES.

Annexure II.3 Contd.

8. HSD Purchase

1. How much HSD have you purchased today ______________

2. (i) How much distance is this retail pump outlet from your village : ______________

(ii) How much time does it take to travel one way from your village to here : ______________

(iii) Mode of travel from the village to Retail Outlet : ______________

3. Do you purchase HSD from here always or only occasionally : ______________

4. For how many days will the HSD you have purchased today last : ______________

5. Do you sell HSD purchased from here to other farmers in your village : Yes/No

6. Do you also sometimes purchase HSD from other farmers/reseller in the village : Yes/No

Annexure II.3 Contd.

** C. INFORMATION FOR OWN USE OF HSD

** C1 (Diesel pump set)

1. Make of diesel pumpset ______________

2. Area under cultivation by type of crop

Crop	Area
______________	______________
______________	______________
______________	______________
______________	______________

3. On the day when the pumpset is used, for how many hours is it normally used : ______________

4. How much area is irrigated if the diesel pumpset is used on one day : ______________

5. Quantity of HSD used in one day : ______________

6. After how many days do you irrigate the same crop if there is no rain :

Crop	No. of Days
______________	______________
______________	______________
______________	______________
______________	______________

Annexure II.3 Contd.

7. After how many days do you irrigate the same crop if it rains normal/heavy :

Crop	No. of Days
____________	____________
____________	____________
____________	____________
____________	____________

** C2 (Tractor)

1. Make of Tractor ______________

2. How much total area is to be prepared for cultivation : ____________

3. How much area can be prepared for cultivation per day : ____________

4. On the day when the tractor is to be used for land preparation, for how many hours is the tractor used : ____________

5. For how many days is the tractor used for land preparation : ____________

6. (i) Do you use the tractor as transport vehicle : Yes/No

(ii) If Yes, for how many days : in last 1 month ________

in last 3 months ________

(iii) On the day when the tractor is used for transport :

how much distance is usually travelled ____________

how much HSD is usually consumed ____________

Annexure II.3 Contd.

7. How much HSD is used per hour of tractor for :

land preparation ________________

transportation ________________

D. INFORMATION FOR USE OF PUMPS SETS TRACTORS BY OTHER FARMERS

	Farmer #1	Farmer #2	Farmer #3	Farmer #4	Farmer #5
** D1 (Diesel pump sets)					
1) Crop					
2) Area under cultivation					
3) Number of irrigations					
4) Number of hours per irrigation					
** D2 (Tractors)					
1) Area to be prepared for cultivation					

Annexure II.4 : Questionnaire for Industrial/Commercial Consumers

** 1. Name of retail outlet ____________________

** 2. Address of retail outlet ____________________
____
____

** 3. Name of Establishment ____________________
____

** 4. Address of Establishment ____________________
____

** 5. Major Items Manufactured (for industries only) ____________________
____
____
____
____
____

** 6. How much HSD have you purchased today: ________ litres
________ Rs

** 7. Working hours of the industrial unit:

* Number of shifts __________
* Shift timings

	From	To
for shift 1	________	________
for shift 2	________	________
for shift 3	________	________

** 8. How many dg sets do you have ________

Annexure II.4 Contd.

** 9. On the average, how much HSD do you purchase each time : ________ litres

________ Rs

** 10. During the last month, how many times have you purchased HSD : ________

** 11. During the last three months, how many times have you purchased HSD : ________

** 12. Are you the only person who is responsible for HSD purchase : Yes/NO

* If no, then out of 10 trips to purchase HSD how many times are you sent __________

* 13. How many industrial establishments are there in the industrial estate : ________

* 14. How many of these establishments you think, have captive generators : ________

* 15. In which month is HSD used :

maximum ___________

minimum ___________

* 16. Power supply situation in the industry in the last month

- number of power cuts during working hours ______
- average duration of power cuts during working hours on one day ______

Annexure II.4 Contd.

17. Capacities of dg sets and approximate number of hours run in the last month

dg unit no.1 __________ kVA __________ hrs

dg unit no.2 __________ kVA __________ hrs

dg unit no.3 __________ kVA __________ hrs

dg unit no.4 __________ kVA __________ hrs

dg unit no.5 __________ kVA __________ hrs

dg unit no.6 __________ kVA __________ hrs

dg unit no.7 __________ kVA __________ hrs

dg unit no.8 __________ kVA __________ hrs

Annexure III.1: Delhi/New Delhi -- Two Wheelers (Passenger Transport)

	Fuel use per day (litre)---------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(2w, all)	1153	1153	1153	1153	1153	1153	1153	1153	1153	1153 .	1153
avg(2w, all)	0.74	2.19	1.44	1.45	250.84	329.08	289.96	184.46	719.26	417.89	37.62
No.(2w,all mb)	149	149	149	149	149	149	149	149	149	149	149
avg(2w,all mb)	0.94	2.36	1.64	1.73	250.65	328.82	289.73	235.75	777.13	474.42	39.86
No.(2w,all sc)	975	975	975	975	975	975	975	975	975	975	975
avg(2w,all sc)	0.71	2.18	1.43	1.42	250.87	329.13	290.00	179.36	717.80	414.13	36.92
No.(2w,all md)	29	29	29	29	29	29	29	29	29	29	29
avg(2w,all md)	0.37	1.43	0.88	0.89	250.79	329.02	289.91	92.27	470.85	254.14	49.66
No.(enfield)	10	10	10	10	10	10	10	10	10	10	10
avg(enfield)	1.54	3.46	2.49	2.65	250.79	329.02	289.91	385.07	1138.54	721.26	32.40
No.(H.Honda)	11	11	11	11	11	11	11	11	11	11	11
avg(H.Honda)	0.72	1.71	1.21	1.54	249.43	326.35	287.89	178.61	558.17	347.73	55.23
No.(Ind.Suz)	5	5	5	5	5	5	5	5	5	5	5
avg(Ind.Suz)	0.89	2.17	1.53	1.65	250.79	329.02	289.91	223.66	714.59	444.09	45.00
No.(Kawasaki)	17	17	17	17	17	17	17	17	17	17	17
avg(Kawasaki)	0.93	2.24	1.58	1.66	249.47	328.22	288.84	230.43	734.31	453.51	45.94
No.(Rajdoot)	33	33	33	33	33	33	33	33	33	33	33
avg(Rajdoot)	0.78	2.11	1.41	1.45	250.56	328.88	289.72	195.75	692.45	408.33	37.85
No.(Yamaha)	48	48	48	48	48	48	48	48	48	48	48
avg(Yamaha)	0.99	2.39	1.68	1.90	250.32	328.74	289.53	247.09	784.80	487.03	40.63
No.(Yezdi)	24	24	24	24	24	24	24	24	24	24	24
avg(Yezdi)	0.93	2.62	1.76	1.95	252.70	330.33	291.52	233.22	864.60	510.31	32.00
No.(Bullet)	1	1	1	1	1	1	1	1	1	1	1
avg(Bullet)	1.43	2.86	2.14	2.03	250.79	329.02	289.91	358.27	940.07	621.23	35.00
No.(Chetak)	81	81	81	81	81	81	81	81	81	81	81
avg(Chetak)	0.60	2.21	1.37	1.37	250.70	328.97	289.83	151.22	726.79	398.02	36.52
No.(K.Honda)	8	8	8	8	8	8	8	8	8	8	8
avg(K.Honda)	0.37	1.62	0.98	1.21	248.93	327.88	288.40	93.22	532.20	282.85	41.81

Annexure III.1 contd.

No.(Lamby)	29	29	29	29	29	29	29	29	29	29	29
avg(Lamby)	1.45	3.73	2.57	2.73	249.76	328.39	289.08	362.01	1226.49	742.83	29.16
No.(LML)	166	166	166	166	166	166	166	166	166	166	166
avg(LML)	0.76	2.16	1.45	1.57	251.62	329.59	290.61	190.60	712.67	423.18	38.20
No.(Priya)	197	197	197	197	197	197	197	197	197	197	197
avg(Priya)	0.63	2.11	1.35	1.43	251.14	329.27	290.21	158.38	694.49	391.07	35.69
No.(Vijay)	18	18	18	18	18	18	18	18	18	18	18
avg(Vijay)	0.52	2.57	1.54	1.44	250.38	328.77	289.57	130.40	846.30	446.99	32.00
No.(Baj.Sup)	454	454	454	454	454	454	454	454	454	454	454
avg(Baj.Sup)	0.71	2.09	1.38	1.50	250,82	329.04	289.93	178.55	689.35	400.15	37.59
No.(oth sc)	22	22	22	22	22	22	22	22	22	22	22
avg(oth sc)	0.94	2.47	1.69	1.62	247.01	328.40	287.70	233.20	811.23	487.60	38.61

MODEL2W	Age(L)	Age(L)	Age(L)	Age(L)	Age(L)	Age(L)	Age(L)	Age(L)	Age(L)	
	0	1	2	3	5	7	10	15	20	Total
PRIYA	21	27	39	30	26	15	26	9	2	195
LML	45	53	28	10	3	0	1	0	0	140
LAMBERETTA	2	2	0	2	2	1	7	5	7	28
K.HONDA	5	3	0	0	0	0	0	0	0	8
KAWASAKI	8	5	3	1	0	0	0	0	0	17
IND SUZUKI	0	0	1	3	0	0	0	0	0	4
H.HONDA	3	4	1	2	1	0	0	0	0	11
ENFIELD	2	1	0	4	0	0	1	1	1	10
OTHERS	2	5	2	1	1	2	2	0	1	16
YEZDI	1	3	2	5	5	2	4	1	0	23
YAMAHA	15	14	13	3	3	0	0	0	0	48
MOPEDS	6	6	12	2	2	1	0	0	0	29
VIJAY	0	0	0	1	7	6	4	0	0	18
VESPA	2	1	1	0	1	3	3	1	12	24
RAJDOOT	5	5	4	3	3	7	2	3	1	33
CHETAK	19	13	12	11	12	10	4	0	0	81
BULLET	0	1	0	0	0	0	0	0	0	1
BAJAJ CUB	1	2	1	2	1	0	0	0	0	7
BAJAJ S	73	82	60	107	55	28	31	17	1	454
All	210	227	179	187	122	75	85	37	25	1147

Annexure III.1 contd.

```
ODEL2W               ALL
dist(L)          0   697
dist(L)         50   363
dist(L)        100    85
dist(L)        200     4
dist(L)        300     0
dist(L)        400     0
dist(L)        500     0
dist(L)        600     0
dist(L)        700     0
dist(L)        800     0
dist(L)        900     0
dist(L)       1000     0
                    1149


ODEL2W          milage  milage  milage  milage  milage  milage  milage  milage  milage  milage  milage
                    20      25      30      35      40      45      50      55      60      70      80 Total
PRIYA                2       2      40      68      56      26       3       0       0       0       0   197
LML                  0       1       7      27      66      35       5       1       0       0       0   142
LAMBERETTA           1       8      11       6       3       0       0       0       0       0       0    29
K.HONDA              0       0       1       1       2       1       3       0       0       0       0     8
KAWASAKI             0       0       0       2       4       2       6       3       0       0       0    17
IND SUZUKI           0       0       0       0       1       2       2       0       0       0       0     5
H.HONDA              0       0       0       0       1       1       2       1       4       2       0    11
ENFIELD              0       1       4       2       3       0       0       0       0       0       0    10
OTHERS               0       0       4       1      11       0       0       0       0       0       0    16
YEZDI                0       5       7       7       2       2       0       0       0       0       0    23
YAMAHA               1       1       1       6      20      14       5       0       0       0       0    48
MOPED                0       0       2       2       4       2       7       6       3       2       1    29
VIJAY                1       1       7       4       5       0       0       0       0       0       0    18
VESPA                2       2       4       9       4       3       0       0       0       0       0    24
RAJDOOT              0       1       3      10      11       7       1       0       0       0       0    33
CHETAK               2       1       8      21      35      12       2       0       0       0       0    81
BULLET               0       0       0       1       0       0       0       0       0       0       0     1
BAJAJ CUB            0       0       0       1       0       4       1       1       0       0       0     7
BAJAJ S              1       5      50     133     186      67       7       4       1       0       0   454
           ALL      10      28     149     301     414     178      44      16       8       4       1  1153


ODEL2W               ALL
# pass           1     4
# pass           2     2
# pass           3     1
# pass           4     0
# pass           5     0
# pass           6     0
# pass           7     0
# pass           8     0
# pass           9     0
# pass          10     1
                       8
==========================================================
QBEL2W                          ALL
Month/max       jan               0
Month/max       feb               1
Month/max       mar               0
Month/max       apr               1
Month/max       may               0
Month/max       jun               0
Month/max       july              0
Month/max       aug               1
Month/max       sep               0
Month/max       oct               0
Month/max       nov               0
Month/max       dec               0
                                  3
```

```
QBEL2W                          ALL
Month/min       jan               0
Month/min       feb               0
Month/min       mar               2
Month/min       apr               0
Month/min       may               0
Month/min       jun               0
Month/min       july              0
Month/min       aug               0
Month/min       sep               0
Month/min       oct               0
Month/min       nov               0
Month/min       dec               1
                                  3
```

```
QBEL2W              ALL
Cheap                97
More rel            261
Less Cro            243
Faster               74
Any 2               177
Any 3                71
All                  64
```

Annexure III.2 : Delhi/New Delhi----Three Wheelers (Passenger Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons. (km/litre)
	low	high	ave	given	low	high	ave	low	high	ave	
No.(3w,all)	626	626	626	626	626	626	626	626	626	626	626
avg(3w,all)	3.96	7.85	5.90	5.76	260.91	326.60	293.76	1034.18	2566.34	1735.67	23.59
No.(API)	148	148	148	148	148	148	148	148	148	148	148
avg(API)	4.09	8.08	6.09	5.66	261.03	326.71	293.87	1067.95	2639.29	1787.94	23.20
No.(Bajaj)	161	161	161	161	161	161	161	161	161	161	161
No.(Bajaj)	3.02	7.41	5.61	5.59	260.85	326.52	293.68	998.45	2423.03	1651.16	25.53
No.(Lamby)	317	317	317	317	317	317	317	317	317	317	317
No.(Lamby)	3.97	7.97	5.97	5.90	260.09	326.59	293.74	1036.56	2605.06	1754.19	22.78

QDEL3W		All
Age(L)	0	68
Age(L)	1	82
Age(L)	2	66
Age(L)	3	118
Age(L)	5	111
Age(L)	7	77
Age(L)	10	47
Age(L)	15	34
Age(L)	20	19
		622

QDEL3W		All
dist(L)	0	9
dist(L)	50	113
dist(L)	100	481
dist(L)	200	16
dist(L)	300	2
dist(L)	400	1
		622

==

Annexure III.2 contd.

QDEL3W		All
milage	17	6
milage	19	31
milage	19	13
milage	20	113
milage	21	45
milage	22	94
milage	23	23
milage	24	20
milage	25	175
milage	26	20
milage	27	14
milage	28	13
milage	>28	72
		626

QDEL3W		All
# pass	1	0
# pass	2	2
# pass	3	5
# pass	4	0
# pass		7

QDEL3W		All
Month/max	jan	1
Month/max	feb	0
Month/max	mar	0
Month/max	apr	1
Month/max	may	0
Month/max	jun	1
Month/max	jul	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	1
Month/max	dec	0
		4

QDEL3W		All
Month/min	jan	1
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	0
Month/min	jul	1
Month/min	aug	1
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	1
		4

Annexure III.2 contd.

QDEL3W	All
Cheap	2
More rel	6
less Cro	7
Faster	1
Any 2	3
Any 3	1
All	1

Annexure III.3: Delhi/New Delhi — Cars (Passenger Transport)

QDELCAR	Fuel use per day (litre)------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(all)	443	443	443	443	443	443	443	443	443	443	443
avg(all)	3.01	7.51	5.16	5.23	275.46	336.03	305.74	830.36	2525.25	1578.17	13.13
No.(amby)	66	66	66	66	66	66	66	66	66	66	66
avg(amby)	4.87	11.33	7.99	7.59	273.75	334.69	304.22	1334.27	3799.13	2434.92	9.55
No.(Contessa)	9	9	9	9	9	9	9	9	9	9	9
avg(Contessa)	11.61	19.68	15.65	15.18	275.78	335.71	305.74	3200.98	6608.37	4783.64	9.33
No.(Fiat)	110	110	110	110	110	110	110	110	110	110	110
avg(Fiat)	1.74	6.10	3.75	3.61	276.15	336.10	306.12	483.59	2053.21	1151.91	11.30
No.(Maruti)	172	172	172	172	172	172	172	172	172	172	172
avg(Maruti)	2.30	5.77	3.96	4.34	275.02	336.06	305.54	635.68	1939.47	1211.28	15.89
No.(M.van)	59	59	59	59	59	59	59	59	59	59	59
avg(M.van)	3.21	7.39	5.23	5.39	275.71	336.02	305.86	885.62	2485.42	1600.67	14.19
No.(NE118)	5	5	5	5	5	5	5	5	5	5	5
avg(NE118)	3.93	8.52	6.18	6.23	275.78	335.71	305.74	1082.83	2860.12	1889.92	10.90
No.(others)	22	22	22	22	22	22	22	22	22	22	22
avg(others)	5.02	11.82	8.31	8.52	279.65	339.70	309.68	1399.12	4003.83	2565.12	10.61

QDELCAR		OTHERS	NE 118	M.VAN	MARUTI	FIAT	CONTESSA	AMBY	ALL
Age(L)	0	1	4	17	41	11	4	2	80
Age(L)	1	3	0	15	59	16	2	9	104
Age(L)	2	1	0	11	35	9	1	2	59
Age(L)	3	8	1	14	30	7	0	13	73
Age(L)	5	5	0	1	6	7	1	11	31
Age(L)	7	3	0	1	0	12	0	9	25
Age(L)	10	0	0	0	0	22	1	7	30
Age(L)	15	0	0	0	0	16	0	5	21
Age(L)	20	1	0	0	1	10	0	8	20
		22	5	59	172	110	9	66	443

Annexure III.3 contd.

MODELCAR		ALL
dist(L)	0	226
dist(L)	50	148
dist(L)	100	62
dist(L)	200	6
dist(L)	300	1
dist(L)	400	0
dist(L)	500	0
dist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		443

MODELCAR		OTHERS	NE 118	M.VAN	MARUTI	FIAT	CONTESSA	AMBY	ALL
milage	7	4	0	0	0	0	0	1	5
milage	8	4	0	0	0	4	2	9	19
milage	9	0	1	1	0	6	2	13	23
milage	10	4	1	2	0	24	4	36	71
milage	11	0	0	0	0	22	1	7	30
milage	12	4	3	6	0	31	0	0	44
milage	14	3	0	22	14	18	0	0	57
milage	16	2	0	20	111	5	0	0	138
milage	17	1	0	8	27	0	0	0	36
milage	18	0	0	0	14	0	0	0	14
milage	>18	0	0	0	6	0	0	0	6
		22	5	59	172	110	9	66	443

MODELCAR		ALL
# pass	1	0
# pass	2	2
# pass	3	1
# pass	4	2
# pass	5	0
# pass	6	0
# pass	7	0
# pass	8	0
# pass	9	0
# pass	10	0
		5

==

Annexure III.3 contd.

QDELCAR		ALL
Month/max	jan	1
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	0
Month/max	jun	0
Month/max	jul	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		1

Note: No information on month of minimum use.

QDELCAR	ALL
Cheap	12
More rel	54
Less Cro	52
Faster	28
Any 2	30
Any 3	12
All	6

Annexure III.4: Delhi/New Delhi -- Taxis (Passenger Transport)

	Fuel use per day (litre)---------				Number of days of use per year------------			annual fuel con(litres)----			fuel cons. (km/litre)
	low	high	ave	given	low	high	ave	low	high	ave	
No.(all)	26	26	26	26	26	26	26	26	26	26	26
avg(all)	5.69	12.38	9.01	9.24	288.96	349.79	319.38	1651.70	4344.61	2886.13	10.37
No.(amby)	21	21	21	21	21	21	21	21	21	21	21
avg(amby)	6.34	13.51	9.91	10.10	288.96	349.79	319.38	1839.39	4741.24	3176.52	9.79
No.(Fiat)	3	3	3	3	3	3	3	3	3	3	3
avg(Fiat)	4.76	10.54	7.59	7.67	288.96	349.79	319.38	1374.82	3687.26	2422.61	11.36
No.(M.van)	2	2	2	2	2	2	2	2	2	2	2
avg(M.van)	0.33	3.33	1.67	2.50	288.96	349.79	319.38	96.32	1165.97	532.29	15.00

QDELTAXI		MARUTI	FIAT	AMBY	ALL
Age(L)	0	0	0	1	1
Age(L)	1	2	1	1	4
Age(L)	2	0	0	0	0
Age(L)	3	0	0	2	2
Age(L)	5	0	1	1	2
Age(L)	7	0	0	4	4
Age(L)	10	0	0	2	2
Age(L)	15	0	1	6	7
Age(L)	20	0	0	4	4
		2	3	21	26

QDELTAXI		ALL
dist(L)	0	4
dist(L)	50	15
dist(L)	100	7
dist(L)	200	0
dist(L)	300	0
dist(L)	400	0
dist(L)	500	0
dist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		26

Annexure III.4 contd.

MODELTAXI		MARUTI	FIAT	AMBY	ALL
mileage	5	0	0	0	0
mileage	6	0	0	0	0
mileage	7	0	0	0	0
mileage	8	0	0	5	5
mileage	10	0	1	12	13
mileage	11	0	0	0	0
mileage	12	0	1	3	4
mileage	14	0	1	0	1
mileage	16	2	0	1	3
mileage	18	0	0	0	0
mileage	>18	0	0	0	0
		2	3	21	26

Note: no information on month of max or min use, occupancy, and reasons for shifting to public modes of transport.

Annexure III.5: Delhi/New Delhi -- Jeeps (Passenger Transport)

	Fuel use per day (litre)				Number of days of use per year			annual fuel con(litres)			fuel c
	low	high	ave	given	low	high	ave	low	high	ave	(km/li
No.(pjeep,all)	40	40	40	40	40	40	40	40	40	40	4
avg(pjeep,all)	3.39	8.36	5.76	6.88	274.92	339.54	307.23	927.43	2849.54	1771.64	11.7
No.(Gypsy)	38	38	38	38	38	38	38	38	38	38	3
avg(Gypsy)	3.45	8.40	5.81	7.09	275.78	339.80	307.79	946.07	2864.06	1790.48	11.
No.(pjeep/oth)	2	2	2	2	2	2	2	2	2	2	
avg(pjeep/oth)	2.31	7.69	4.81	3.00	258.54	334.58	296.56	573.24	2573.72	1413.60	9.
No.(djeep,all)	9	9	9	9	9	9	9	9	9	9	
avg(djeep,all)	3.69	8.68	6.10	6.06	273.75	336.84	305.29	1000.78	2910.58	1852.65	11.

Note: pjeep = jeeps using petrol (MS)
djeep = jeeps using diesel (HSD)
All djeeps are "Mahindra".

QDELJEEP		MAHIN(d)	OTHERS(p)	GYPSY(p)	ALL(p)
Age(L)	0	0	0	10	10
Age(L)	1	2	0	14	14
Age(L)	2	2	0	2	2
Age(L)	3	5	0	9	9
Age(L)	5	0	1	2	3
Age(L)	7	0	0	1	1
Age(L)	10	0	0	0	0
Age(L)	15	0	1	0	1
Age(L)	20	0	0	0	0
		9	2	38	40

QDELJEEP		MAHIN(d)	ALL(P)
dist(L)	0	3	21
dist(L)	50	5	12
dist(L)	100	1	6
dist(L)	200	0	1
dist(L)	300	0	0
dist(L)	400	0	0
dist(L)	500	0	0
dist(L)	600	0	0
dist(L)	700	0	0
dist(L)	800	0	0
dist(L)	900	0	0
dist(L)	1000	0	0
		9	40

Annexure III.5 contd.

ODELJEEP		MAHIN(d)	ALL(p)	OTHERS(p)	GYPSY(p)
milage	5	0	0	0	0
milage	6	0	0	0	0
milage	7	0	1	1	0
milage	8	0	1	0	1
milage	9	1	0	0	0
milage	10	3	11	0	11
milage	11	2	1	0	1
milage	12	2	11	0	11
milage	14	0	12	1	11
milage	16	1	3	0	3
milage	18	0	0	0	0
		9	40	2	38

ODELJEEP		MAHIN(d)	ALL(p)
# pass	1	0	0
# pass	2	0	0
# pass	3	0	1
# pass	4	1	0
# pass	5	1	1
# pass	6	0	0
# pass	7	0	0
# pass	8	0	0
# pass	9	0	0
# pass	10	0	0
		2	2

ODELJEEP		MAHIN(d)	ALL(p)
Month/max	jan	0	0
Month/max	feb	0	0
Month/max	mar	1	0
Month/max	apr	0	0
Month/max	may	0	0
Month/max	jun	0	0
Month/max	jul	0	1
Month/max	aug	0	0
Month/max	sep	0	0
Month/max	oct	0	0
Month/max	nov	0	0
Month/max	dec	0	0
		1	1

===

Annexure III.5 contd.

ODELJEEP		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	1
Month/min	apr	1
Month/min	may	0
Month/min	jun	1
Month/min	jul	1
Month/min	aug	0
Month/min	sep	1
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		5

ODELJEEP	ALL(p)	MAHIN(d)
Cheap	4	1
More rel	8	2
Less Cro	9	2
Faster	1	1
Any 2	7	1
Any 3	1	0
All	1	1

Annexure III.6: Delhi/New Delhi — Buses (Passenger Transport)

	Fuel use per day (lit)-----------				Number of days of use per year-------------			annual fuel con(li	
	low	high	ave	given	low	high	ave	low	high
QDELBUS									
NO.(MINIBUS)	4	4	4	4	4	4	4	4	4
AVG(MINIBUS)	3.28	8.23	5.65	6.63	243.33	324.44	283.89	798.44	2669.91
NO.(BUS)	4	4	4	4	4	4	4	4	4
AVG(BUS)	96.67	146.25	121.46	120.00	283.89	344.72	314.31	26783.56	49072.22

QDELBUS		BUS	MINIBUS	ALL
Age(L)	0	1	1	2
Age(L)	1	0	0	0
Age(L)	2	0	0	0
Age(L)	3	1	1	2
Age(L)	5	2	1	3
Age(L)	7	0	1	1
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		4	4	8

QDELBUS		BUS	MINIBUS	ALL
dist(L)	0	0	1	1
dist(L)	50	0	3	3
dist(L)	100	0	0	0
dist(L)	200	2	0	2
dist(L)	300	1	0	1
dist(L)	400	0	0	0
dist(L)	500	0	0	0
dist(L)	600	1	0	1
dist(L)	700	0	0	0
dist(L)	800	0	0	0
dist(L)	900	0	0	0
dist(L)	1000	0	0	0
		4	4	8

Note: No information on occupancy,
and month of max & min use.

Annexure III.7 : Haryana----Two Wheelers (Passenger Transport)

	Fuel use per day(lit)----				Number of days of use per year----------			annual fuel con(litre			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(2W,ALL)	2657	2657	2657	2657	2657	2657	2657	2657	2657	2657	2657
AVG(2W,ALL)	0.88	2.21	1.52	1.55	268.98	315.95	292.46	248.70	696.66	472.68	40.99
No.(2W,C)	950	950	950	950	950	950	950	950	950	950	950
AVG(2W,C)	0.80	2.10	1.42	1.45	259.42	313.16	286.29	220.74	658.35	439.55	40.49
No.(2W,D)	1568	1568	1568	1568	1568	1568	1568	1568	1568	1568	1568
AVG(2W,D)	0.94	2.29	1.59	1.63	276.20	316.54	296.37	268.84	722.19	495.51	41.14
No.(2W,E)	139	139	139	139	139	139	139	139	139	139	139
AVG(2W,E)	0.80	2.02	1.38	1.41	252.82	328.38	290.60	212.69	670.52	441.60	42.63
No.(2w,all mb)	881	881	881	881	881	881	881	881	881	881	881
avg(2w,all mb)	0.96	2.32	1.61	1.68	276.25	315.83	296.04	273.86	728.09	500.97	41.94
No.(2w,all sc)	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415
avg(2w,all sc)	0.94	2.35	1.62	1.63	264.66	314.15	289.41	262.44	741.58	502.01	36.38
No.(2w,all md)	361	361	361	361	361	361	361	361	361	361	361
avg(2w,all md)	0.47	1.37	0.90	0.94	268.16	323.26	295.71	133.48	443.87	288.68	56.72
No.(bullet)	69	69	69	69	69	69	69	69	69	69	69
avg(bullet)	1.82	4.06	2.92	3.12	289.83	315.69	302.76	542.33	#######	908.06	26.99
No.(enfield)	48	48	48	48	48	48	48	48	48	48	48
avg(enfield)	1.04	2.90	1.92	1.71	262.85	322.75	292.80	289.61	953.10	621.36	28.96
No.(H.Honda)	237	237	237	237	237	237	237	237	237	237	237
avg(H.Honda)	0.65	1.58	1.10	1.17	271.52	311.28	291.40	181.75	492.20	336.98	57.68
No.(kawasaki)	89	89	89	89	89	89	89	89	89	89	89
avg(kawasaki)	0.89	1.99	1.43	1.67	283.11	329.37	306.24	253.47	658.84	456.16	46.62
No.(rajdoot)	328	328	328	328	328	328	328	328	328	328	328
avg(rajdoot)	1.04	2.55	1.77	1.76	276.35	313.51	294.93	296.30	788.24	542.27	34.69
No.(yamaha)	77	77	77	77	77	77	77	77	77	77	77
avg(yamaha)	0.67	1.77	1.20	1.46	274.55	323.55	299.05	186.53	566.73	376.63	45.60
No.(yezdi)	33	33	33	33	33	33	33	33	33	33	33
avg(yezdi)	1.31	3.01	2.13	1.98	285.73	307.24	296.49	386.69	919.20	652.95	30.00

Annexure III.7 contd.

No.(baj 150)	6	6	6	6	6	6	6	6	6	6	6
avg(baj 150)	1.20	2.58	1.88	1.80	243.33	324.44	283.89	291.68	837.89	564.79	35.67
No.(baj che)	172	172	172	172	172	172	172	172	172	172	172
avg(baj che)	0.68	1.94	1.27	1.33	248.64	312.18	280.41	173.29	610.36	391.82	37.94
No.(baj cub)	61	61	61	61	61	61	61	61	61	61	61
avg(baj cub)	0.97	2.31	1.62	1.62	244.33	325.11	284.72	235.33	751.87	493.60	36.33
No.(baj sup)	600	600	600	600	600	600	600	600	600	600	600
avg(baj sup)	0.96	2.34	1.62	1.59	271.75	318.83	295.29	275.47	751.13	513.30	36.65
No.(k.honda)	47	47	47	47	47	47	47	47	47	47	47
avg(k.honda)	0.30	1.36	0.78	0.87	216.33	286.48	251.40	69.36	394.70	232.03	44.23
No.(lamby)	95	95	95	95	95	95	95	95	95	95	95
avg(lamby)	1.71	3.68	2.68	2.67	287.01	302.12	294.56	500.92	#######	806.42	27.78
No.(lml)	294	294	294	294	294	294	294	294	294	294	294
avg(lml)	1.05	2.53	1.76	1.82	265.38	313.57	289.48	286.91	794.66	540.79	36.56
No.(narmada)	31	31	31	31	31	31	31	31	31	31	31
avg(narmada)	0.48	1.83	1.10	1.11	238.75	316.59	277.67	116.71	580.33	348.52	34.58
No.(priya)	91	91	91	91	91	91	91	91	91	91	91
avg(priya)	0.78	2.09	1.40	1.54	277.96	308.27	293.11	227.42	641.62	434.52	37.43
No.(vijay)	18	18	18	18	18	18	18	18	18	18	18
avg(vijay)	0.15	1.54	0.77	0.75	230.94	307.55	269.24	35.91	477.80	256.86	32.61

Annexure III.7 contd.

QHAR2W	Age(L) 0	Age(L) 1	Age(L) 2	Age(L) 3	Age(L) 5	Age(L) 7	Age(L) 10	Age(L) 15	Age(L) 20	All
all mopeds	41	137	104	56	18	3	2	0	0	361
baj 150	1	1	2	2	0	0	0	0	0	6
baj che	16	46	42	31	19	13	5	0	0	172
baj cub	8	11	18	12	9	3	0	0	0	61
baj sup	69	209	161	98	40	16	7	0	0	600
Bullet	5	19	25	11	3	6	0	0	0	69
Enfield	3	10	19	12	2	2	0	0	0	48
H.Honda	67	80	62	27	1	0	0	0	0	237
YEZDI	1	8	16	4	1	3	0	0	0	33
YAMAHA	19	24	25	8	1	0	0	0	0	77
VIJAY	0	4	2	5	6	1	0	0	0	18
RAJDOOT	41	95	127	42	11	9	2	1	0	328
PRIYA	17	27	35	10	2	0	0	0	0	91
NARMADA	4	6	14	7	0	0	0	0	0	31
lml	43	104	85	48	12	2	0	0	0	294
lamberetta	10	27	33	15	7	3	0	0	0	95
K.honda	8	24	11	3	1	0	0	0	0	47
Kawasaki	16	40	23	10	0	0	0	0	0	89
ALL	369	872	804	401	133	61	16	1	0	2657

QHAR2W		ALL
dist(L)	0	1101
dist(L)	50	1444
dist(L)	100	103
dist(L)	200	1
dist(L)	300	0
dist(L)	400	0
dist(L)	500	0
dist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		2649

Annexure III.7 contd.

QHAR2W	milage 20	milage 25	milage 30	milage 35	milage 40	milage 45	milage 50	milage 55	milage 60	milage 70	milage 80	>80	
all mopeds	1	0	8	7	61	33	27	23	47	124	29	1	361
baj 150	0	0	0	3	3	0	0	0	0	0	0	0	6
bajche	0	0	7	46	90	26	1	2	0	0	0	0	172
baj cub	0	0	2	28	24	2	5	0	0	0	0	0	61
baj sup	1	5	87	190	242	65	3	2	2	3	0	0	600
Bullet	12	38	5	4	9	1	0	0	0	0	0	0	69
Enfield	5	12	19	4	7	1	0	0	0	0	0	0	48
H.Honda	0	0	0	0	13	22	58	29	19	96	0	0	237
YEZDI	1	5	18	8	1	0	0	0	0	0	0	0	33
YAMAHA	1	2	0	2	18	21	19	5	9	0	0	0	77
VIJAY	0	0	8	9	1	0	0	0	0	0	0	0	18
RAJDOOT	10	8	134	56	71	43	1	0	4	1	0	0	328
PRIYA	0	0	6	46	19	17	2	1	0	0	0	0	91
NARMADA	0	0	3	17	11	0	0	0	0	0	0	0	31
LML	1	1	26	118	110	32	4	2	0	0	0	0	294
LAMBERETTA	5	42	40	3	5	0	0	0	0	0	0	0	95
K.HONDA	0	0	2	0	13	26	1	0	3	2	0	0	47
KAWASAKI	0	0	0	1	15	23	37	10	3	0	0	0	89
ALL	37	113	365	542	713	312	158	74	87	226	29	1	2657

QHAR2W		ALL
# pass	1	516
# pass	2	185
# pass	3	0
# pass	4	0
# pass	5	2
# pass	6	1
# pass	7	0
# pass	8	0
# pass	9	0
# pass	10	0
		704

Annexure III.7 contd.

```
QHAR2W                    ALL
Month/max      jan         92
Month/max      feb         87
Month/max      mar        666
Month/max      apr        384
Month/max      may         20
Month/max      jun          2
Month/max      july         2
Month/max      aug          1
Month/max      sep          1
Month/max      oct          2
Month/max      nov          2
Month/max      dec         17
                         1276
```

```
QHAR2W                    ALL
Month/min      jan         37
Month/min      feb        104
Month/min      mar         95
Month/min      apr        479
Month/min      may        367
Month/min      jun         97
Month/min      july         7
Month/min      aug          3
Month/min      sep          1
Month/min      oct          0
Month/min      nov          4
Month/min      dec         82
                         1276
```

```
QHAR2W          ALL
Cheap          1405
More rel        515
Less Cro        492
Faster          472
Any 2           485
Any 3           109
All              25
```

Annexure III.8 : Haryana----Three Wheelers (Passenger Transport)

	Fuel use per day(lit)-----------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(3W,ALL)	177	177	177	177	177	177	177	177	177	177	177
AVG(3W,ALL)	5.34	11.17	8.21	8.13	267.39	328.34	297.87	1567.92	3765.15	2666.53	15.64
No.(3W,C)	67	67	67	67	67	67	67	67	67	67	67
AVG(3W,C)	2.35	6.23	4.19	4.27	240.91	320.51	280.71	606.32	2031.06	1318.69	16.49
No.(3W,D)	101	101	101	101	101	101	101	101	101	101	101
AVG(3W,D)	7.61	15.06	11.32	11.12	287.27	334.58	310.93	2295.85	5125.41	3740.73	13.70
No.(3W,E)	9	9	9	9	9	9	9	9	9	9	9
AVG(3W,E)	1.29	3.05	2.14	2.44	236.57	315.43	276.00	312.86	978.48	629.67	31.11
No.(3W,API)	29	29	29	29	29	29	29	29	29	29	29
AVG(3W,API)	1.24	4.93	2.93	3.34	222.36	311.16	266.76	271.02	1531.86	901.44	12.66
No.(3W,BAJAJ)	63	63	63	63	63	63	63	63	63	63	63
AVG(3W,BAJAJ)	2.04	5.05	3.48	3.55	246.55	322.19	284.37	534.64	1675.79	1105.21	22.97
No.(3W,LAMBERETTA)	82	82	82	82	82	82	82	82	82	82	82
AVG(3W,LAMBERETTA)	9.28	18.01	13.64	13.20	297.98	338.54	318.26	2804.39	6136.60	4470.50	11.15
No.(3W,OTHERS)	3	3	3	3	3	3	3	3	3	3	3
AVG(3W,OTHERS)	6.60	13.19	9.90	12.00	304.17	344.72	324.44	2006.66	4410.42	3208.54	13.67

DHAR3W		OTHERS	LAMBERETT	BAJAJ	API	ALL
Age(L)	0	0	5	2	1	8
Age(L)	1	2	24	13	9	48
Age(L)	2	1	33	25	12	71
Age(L)	3	0	18	18	7	43
Age(L)	5	0	1	4	0	5
Age(L)	7	0	1	1	0	2
Age(L)	10	0	0	0	0	0
Age(L)	15	0	0	0	0	0
Age(L)	20	0	0	0	0	0
		3	82	63	29	177

Annexure III.8 contd.

```
QHAR3W                     ALL
dist(L)              0      46
dist(L)             50      49
dist(L)            100      77
dist(L)            200       5
dist(L)            300       0
dist(L)            400       0
dist(L)            500       0
dist(L)            600       0
dist(L)            700       0
dist(L)            800       0
dist(L)            900       0
dist(L)           1000       0
                           177

QHAR3W                  OTHERS LAMBERETT   BAJAJ      API      ALL
mileage             20       3        81      34       29      147
mileage             25       0         0       2        0        2
mileage             30       0         1      12        0       13
mileage             35       0         0       8        0        8
mileage             40       0         0       3        0        3
mileage             45       0         0       4        0        4
mileage             50       0         0       0        0        0
mileage             55       0         0       0        0        0
mileage             60       0         0       0        0        0
mileage             70       0         0       0        0        0
mileage             80       0         0       0        0        0
                             3        82      63       29      177

QHAR3W                     ALL
# pass               1       4
# pass               2       3
# pass               3      11
# pass               4      17
# pass               5      40
# pass               6      22
# pass               7       0
# pass               8       0
# pass               9       0
# pass              10       0
                            97
==========================================================================
```

Annexure III.8 contd.

QHAR3W		ALL
Month/max	jan	8
Month/max	feb	5
Month/max	mar	41
Month/max	apr	36
Month/max	may	4
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	2
Month/max	nov	0
Month/max	dec	4
		100

QHAR3W		ALL
Month/min	jan	1
Month/min	feb	7
Month/min	mar	4
Month/min	apr	43
Month/min	may	38
Month/min	jun	2
Month/min	july	2
Month/min	aug	1
Month/min	sep	0
Month/min	oct	0
Month/min	nov	2
Month/min	dec	0
		100

QHAR3W	ALL
Cheap	100
More rel	8
Less Cro	30
Faster	7
Any 2	23
Any 3	7
All	1

Annexure III.9 : Haryana---Cars (Passenger Transport)

QHARCAR	Fuel use per day(lit) low	 high	 ave	 given	Number of days of use per year low	 high	 ave	annual fuel con(litres) low	 high	 ave	fuel cons. (km/litre)
	all petrol cars										
No.(all)	763	763	763	763	763	763	763	763	763	763	763
avg(all)	4.90	10.47	7.64	7.41	275.10	310.07	292.58	1413.89	3224.12	2319.00	11.39
No.(C)	272	272	272	272	272	272	272	272	272	272	272
avg(C)	3.73	8.56	6.08	5.89	269.86	308.33	289.09	1069.23	2608.14	1838.68	11.82
No.(B)	460	460	460	460	460	460	460	460	460	460	460
avg(B)	5.71	11.81	8.73	8.50	279.29	309.33	294.31	1659.26	3641.20	2650.23	11.04
No.(E)	31	31	31	31	31	31	31	31	31	31	31
avg(E)	3.09	7.27	5.11	4.53	259.03	336.22	297.63	796.91	2439.80	1618.35	12.74
No.(Amby)	156	156	156	156	156	156	156	156	156	156	156
avg(Amby)	10.85	17.25	13.98	13.85	262.61	293.79	278.20	1701.87	3802.76	2752.31	13.36
No.(Contes)	24	24	24	24	24	24	24	24	24	24	24
avg(Contes)	4.77	10.38	7.52	7.33	304.17	321.91	313.04	1451.59	3310.00	2380.80	9.42
No.(Fiat)	138	138	138	138	138	138	138	138	138	138	138
avg(Fiat)	7.04	14.25	10.63	10.46	288.62	301.73	295.17	2052.39	4297.01	3174.70	9.25
No.(Maruti)	391	391	391	391	391	391	391	391	391	391	391
avg(Maruti)	3.58	8.11	5.78	5.51	268.62	313.18	290.90	1031.84	2528.20	1780.02	12.98
No.(M.van)	34	34	34	34	34	34	34	34	34	34	34
avg(M.van)	3.34	7.74	5.47	5.26	276.85	332.79	304.82	965.25	2515.25	1740.25	14.15
No.(others)	2	2	2	2	2	2	2	2	2	2	2
avg(others)	10.00	20.00	15.00	15.00	304.17	304.17	304.17	3041.67	6083.33	4562.50	10.00

QHARCAR		Amby	Contes	Fiat	Maruti ca	M.van	others	ALL
Age(L)	0	27	5	18	77	3	0	130
Age(L)	1	37	13	43	170	20	1	284
Age(L)	2	48	3	43	108	7	0	209
Age(L)	3	38	2	23	28	4	1	96
Age(L)	5	15	0	9	4	0	0	28
Age(L)	7	4	0	2	2	0	0	8
Age(L)	10	5	0	0	0	0	0	5
Age(L)	15	0	0	0	0	0	0	0
Age(L)	20	0	0	0	0	0	0	0
		174	23	138	389	34	2	760

==

Annexure III.9 contd.

QHARCAR		ALL
dist(L)	0	180
dist(L)	50	444
dist(L)	100	136
dist(L)	200	3
dist(L)	300	0
dist(L)	400	0
dist(L)	500	0
dist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		763

QHARCAR		Amby	Contes	Fiat	maruti ca	m.van	Others	ALL
milage	7	4	0	1	0	0	1	6
milage	8	106	7	73	0	0	0	186
milage	9	2	0	2	1	0	0	5
milage	10	43	16	43	109	21	0	232
milage	12	13	1	12	63	9	0	98
milage	14	5	0	4	71	1	1	82
milage	15	0	0	0	62	3	0	65
milage	16	1	0	1	51	0	0	53
milage	17	0	0	0	16	0	0	16
milage	18	0	0	2	9	0	0	11
milage	>18	0	0	0	9	0	0	9
		174	24	138	391	34	2	763

QHARCAR		ALL
# pass	1	8
# pass	2	106
# pass	3	105
# pass	4	30
# pass	5	50
# pass	6	19
# pass	7	1
# pass	8	1
# pass	9	0
# pass	10	0
		320

Annexure III.7 contd.

QHARCAR		ALL
Month/max	jan	35
Month/max	feb	20
Month/max	mar	235
Month/max	apr	225
Month/max	may	18
Month/max	jun	1
Month/max	july	2
Month/max	aug	0
Month/max	sep	1
Month/max	oct	0
Month/max	nov	3
Month/max	dec	9
		549

QHARCAR		ALL
Month/min	jan	5
Month/min	feb	34
Month/min	mar	25
Month/min	apr	184
Month/min	may	227
Month/min	jun	41
Month/min	july	4
Month/min	aug	3
Month/min	sep	0
Month/min	oct	1
Month/min	nov	0
Month/min	dec	28
		552

QHARCAR	ALL
Cheap	106
More rel	74
Less Cro	109
Faster	133
Any 2	40
Any 3	8
All	

Annexure III.10 : Haryana — Taxis (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel comp
	low	high	ave	given	low	high	ave	low	high	ave	(Km/litre
QHARTAXI											
No.(TAXI,ALL)	120	120	120	120	120	120	120	120	120	120	120
AVG(TAXI,ALL)	5.88	12.78	9.26	9.83	264.29	326.64	295.46	1692.27	4364.08	3028.18	10.93
No.(TAXI,C)	42	42	42	42	42	42	42	42	42	42	42
AVG(TAXI,C)	5.57	12.23	8.83	9.86	266.51	321.55	294.03	1603.49	4071.96	2837.73	10.29
No.(TAXI,D)	72	72	72	72	72	72	72	72	72	72	72
AVG(TAXI,D)	6.04	13.08	9.49	9.81	263.09	329.38	296.24	1740.07	4521.38	3313.98	11.27
No.(TAXI,E)	6	6	6	6	6	6	6	6	6	6	6
AVG(TAXI,E)	1.22	5.56	3.19	2.25	233.19	300.79	266.99	246.71	1616.59	931.65	12.50
No.(TAXI,AMBY)	59	59	59	59	59	59	59	59	59	59	59
AVG(TAXI,AMBY)	7.36	15.30	11.29	11.76	271.17	325.82	298.50	2112.10	5168.48	3640.29	9.44
No.(TAXI,FIAT)	8	8	8	8	8	8	8	8	8	8	8
AVG(TAXI,FIAT)	6.85	14.33	10.55	11.13	271.22	326.98	299.10	1955.93	4893.50	3424.72	11.13
No.(TAXI,MARUTI)	51	51	51	51	51	51	51	51	51	51	51
AVG(TAXI,MARUTI)	4.05	9.78	6.80	7.45	254.86	327.23	291.05	1174.49	3394.87	2284.68	12.33
No.(TAXI,OTHERS)	2	2	2	2	2	2	2	2	2	2	2
AVG(TAXI,OTHERS)	4.81	9.06	6.88	8.00	273.75	334.58	304.17	1456.20	3231.77	2343.98	18.00

QHARTAXI		Maruti Va	Maruti	Fiat	Amby	ALL
Age(L)	0	0	13	0	13	26
Age(L)	1	0	21	0	9	30
Age(L)	2	1	15	2	19	37
Age(L)	3	0	1	3	15	19
Age(L)	5	1	1	2	3	7
Age(L)	7	0	0	1	0	1
Age(L)	10	0	0	0	0	0
Age(L)	15	0	0	0	0	0
Age(L)	20	0	0	0	0	0
		2	51	8	59	120

==

Annexure III.10 contd.

```
GHARTAXI                 ALL
dist(L)            0      41
dist(L)           50      31
dist(L)          100      46
dist(L)          200       1
dist(L)          300       0
dist(L)          400       0
dist(L)          500       0
dist(L)          600       0
dist(L)          700       0
dist(L)          800       0
dist(L)          900       0
dist(L)         1000       0
                         119

GHARTAXI             Maruti Va  Maruti     Fiat     Amby      ALL
mileage            7         0       0        0        0        0
mileage            8         0       0        4       32       36
mileage            9         0       0        0        0        0
mileage           10         0      29        2       17       48
mileage           12         0       1        0        6        7
mileage           14         0       0        0        0        0
mileage           15         0      17        0        4       21
mileage           16         1       1        0        0        2
mileage           17         0       0        1        0        1
mileage           18         0       2        0        0        2
mileage          >18         1       1        1        0        3
                             2      51        8       59      120

GHARTAXI                 ALL
# pass             1       2
# pass             2      14
# pass             3      16
# pass             4       6
# pass             5      11
# pass             6       5
# pass             7       1
# pass             8       1
# pass             9       0
# pass            10       0
                          56
=================================================================================
```

Annexure III.10 contd.

QHARTAXI		ALL
Month/max	jan	4
Month/max	feb	1
Month/max	mar	20
Month/max	apr	44
Month/max	may	4
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	1
		74

QHARTAXI		ALL
Month/min	jan	0
Month/min	feb	3
Month/min	mar	2
Month/min	apr	21
Month/min	may	45
Month/min	jun	3
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		74

QHARTAXI	ALL
Cheap	74
More rel	18
Less Cro	15
Faster	4
Any 2	7
Any 3	0
All	0

Annexure III.11 : Haryana----Jeeps (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
HARJEEP											
No.(djeep,all)	124	124	124	124	124	124	124	124	124	124	124
AVG(djeep,all)	3.54	9.05	6.17	6.46	245.10	306.42	275.76	940.38	2827.33	1883.85	9.96
No.(djeep,C)	50	50	50	50	50	50	50	50	50	50	50
avg(djeep,C)	2.75	7.97	5.20	5.52	251.85	312.28	282.06	776.56	2481.87	1629.21	10.32
No.(djeep,B)	72	72	72	72	72	72	72	72	72	72	72
avg(djeep,B)	4.18	9.94	6.96	7.27	242.15	304.11	273.13	1078.16	3117.60	2097.88	9.63
No.(djeep,E)	2	2	2	2	2	2	2	2	2	2	2
avg(djeep,E)	0.42	4.17	2.08	1.00	182.50	243.33	212.92	76.04	1013.89	544.97	12.5
No.(djeep,Mah)	120	120	120	120	120	120	120	120	120	120	120
avg(djeep,Mah)	3.50	9.00	6.13	6.45	244.82	305.48	275.15	930.55	2800.51	1865.53	9.93
No.(djeep,oth)	4	4	4	4	4	4	4	4	4	4	4
avg(djeep,oth)	4.66	10.57	7.54	6.75	253.47	334.58	294.03	1235.19	3631.80	2433.50	10.75
No.(Pjeep,all)	90	90	90	90	90	90	90	90	90	90	90
avg(Pjeep,all)	4.95	10.40	7.64	8.42	214.58	253.07	233.83	1130.20	2725.82	1928.01	11.46
No.(Pjeep,C)	23	23	23	23	23	23	23	23	23	23	23
avg(Pjeep,C)	5.08	10.57	7.80	8.37	174.39	222.17	198.28	876.02	2291.79	1583.91	11.65
No.(Pjeep,B)	66	66	66	66	66	66	66	66	66	66	66
avg(Pjeep,B)	4.97	10.44	7.67	8.55	229.08	263.98	246.53	1234.92	2905.21	2070.06	11.35
No.(Pjeep,E)	1	1	1	1	1	1	1	1	1	1	1
avg(Pjeep,E)	0.36	3.57	1.79	1.00	182.50	243.33	212.92	65.18	869.05	467.11	14.00
No.(Pjeep,Gyp)	39	39	39	39	39	39	39	39	39	39	39
avg(Pjeep,Gyp)	4.77	10.04	7.38	7.36	234.70	267.35	251.03	1218.79	2823.63	2021.21	11.67
No.(Pjeep,Mah)	48	48	48	48	48	48	48	48	48	48	48
avg(Pjeep,Mah)	5.03	10.61	7.78	9.08	196.44	240.80	218.62	1036.98	2607.60	1822.29	11.17
No.(Pjeep,oth)	3	3	3	3	3	3	3	3	3	3	3
avg(Pjeep,oth)	5.83	11.67	8.75	11.67	243.33	263.61	253.47	1470.14	3345.83	2407.99	13.33

Note : djeep = jeeps using diesel (HSD)
pjeep = jeeps using petrol (MS)

Annexure III.11 contd.

QHARJEEP/djeep		Mahindra	Others	All
Age(L)	0	13	0	13
Age(L)	1	32	0	32
Age(L)	2	29	1	30
Age(L)	3	37	0	37
Age(L)	5	6	3	9
Age(L)	7	3	0	3
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		120	4	124

QHARJEEP/djeep		All
dist(L)	0	58
dist(L)	50	55
dist(L)	100	11
dist(L)	200	0
dist(L)	300	0
dist(L)	400	0
dist(L)	500	0
dist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		124

QHARJEEP/djeep		Mahindra	Others	All
milage	5	0	0	0
milage	6	0	0	0
milage	7	10	0	10
milage	8	43	1	44
milage	9	6	0	6
milage	10	29	1	30
milage	11	0	0	0
milage	12	17	1	18
milage	13	4	1	5
milage	14	5	0	5
milage	15	1	0	1
milage	16	0	0	0
milage	>17	5	0	5
		120	4	124

Annexure III.11 contd.

```
GHARJEEP/djeep              All
# pass              1         2
# pass              2         7
# pass              3        21
# pass              4        14
# pass              5        23
# pass              6        15
# pass              7         2
# pass              8         1
# pass              9         0
# pass             10         0
                              4
                             89

GHARJEEP/djeep              All
Month/max      jan            2
Month/max      feb            1
Month/max      mar           25
Month/max      apr           15
Month/max      may            2
Month/max      jun            2
Month/max      july           2
Month/max      aug            1
Month/max      sep            1
Month/max      oct            2
Month/max      nov            1
Month/max      dec            6
                             60


GHARJEEP/djeep              All
Month/min      jan            2
Month/min      feb            6
Month/min      mar            3
Month/min      apr           23
Month/min      may           16
Month/min      jun            1
Month/min      july           3
Month/min      aug            2
Month/min      sep            1
Month/min      oct            1
Month/min      nov            3
Month/min      dec            0
                             61
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Annexure III.11 contd.

QHARJEEP/djeep	All
Cheap	47
More rel	27
Less Cro	31
Faster	14
Any 2	13
Any 3	1
All	0

QHARJEEP/pjeep		others	mahindra	gypsy	ALL
Age(L)	0	0	13	9	22
Age(L)	1	0	11	20	31
Age(L)	2	2	12	4	18
Age(L)	3	1	6	4	11
Age(L)	5	0	5	1	6
Age(L)	7	0	1	0	1
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		3	48	38	89

QHARJEEP/pjeep		ALL
dist(L)	0	13
dist(L)	50	59
dist(L)	100	18
dist(L)	200	0
dist(L)	300	0
dist(L)	400	0
dist(L)	500	0
		90

QHARJEEP/pjeep		OTHERS	MAHINDRA	GYPSY	ALL
milage	5	0	0	0	0
milage	6	0	0	0	0
milage	7	0	1	0	1
milage	8	0	5	3	8
milage	9	0	1	0	1
milage	10	2	23	19	44
milage	11	0	0	0	0
milage	12	0	7	4	11
milage	13	0	1	0	1
milage	14	0	5	6	11
milage	15	0	1	3	4
milage	16	0	3	4	7
milage	>17	1	1	0	2
		3	48	39	90

Annexure III.11 contd.

QHARJEEP/pjeep		ALL
# pass	1	0
# pass	2	2
# pass	3	0
# pass	4	2
# pass	5	10
# pass	6	20
# pass	7	5
# pass	8	2
# pass	9	0
# pass	10	1
# pass	>10	0
		42

QHARJEEP/pjeep		ALL
Month/max	jan	11
Month/max	feb	10
Month/max	mar	23
Month/max	apr	21
Month/max	may	15
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	3
		83

QHARJEEP/pjeep		ALL
Month/min	jan	2
Month/min	feb	10
Month/min	mar	11
Month/min	apr	33
Month/min	may	21
Month/min	jun	4
Month/min	july	2
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		83

QHARJEEP/	ALL
Cheap	58
More rel	15
Less Cro	9
Faster	9
Any 2	1
Any 3	0
All	0

Annexure III.12 : Haryana----Buses/Mini-Buses (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(BUS,ALL)	186	186	186	186	186	186	186	186	186	186	186
AVG(BUS,ALL)	32.86	56.93	44.89	45.42	294.46	347.34	320.90	9763.36	19879.31	14821.33	3.91
No.(BUS,C)	75	75	75	75	75	75	75	75	75	75	75
AVG(BUS,C)	30.86	54.60	42.73	44.92	300.11	347.16	323.63	9323.05	19109.33	14216.19	3.91
No.(BUS,D)	107	107	107	107	107	107	107	107	107	107	107
AVG(BUS,D)	34.53	58.75	46.64	46.18	292.99	349.08	321.03	10213.35	20565.84	15389.59	3.92
No.(BUS,E)	4	4	4	4	4	4	4	4	4	4	4
AVG(BUS,E)	25.83	51.67	38.75	34.50	228.13	304.17	266.15	5981.94	15951.85	10966.90	4.00
No.(BUS,LEYLAND)	30	30	30	30	30	30	30	30	30	30	30
AVG(BUS,LEYLAND)	26.29	49.72	37.99	37.08	292.00	338.64	315.32	7709.78	16909.41	12309.60	3.83
No.(BUS,TATA)	156	156	156	156	156	156	156	156	156	156	156
AVG(BUS,TATA)	34.12	58.31	46.22	47.02	294.94	349.01	321.97	10158.28	20450.44	15304.36	3.93
No.(minBUS,ALL)	56	56	56	56	56	56	56	56	56	56	56
AVG(minBUS,ALL)	6.63	14.75	10.59	10.70	241.60	297.29	269.44	1595.32	4302.31	2948.82	8.88
No.(minBUS,C)	27	27	27	27	27	27	27	27	27	27	27
AVG(minBUS,C)	7.53	16.18	11.77	11.69	232.52	278.18	255.35	1795.06	4460.59	3127.83	10.09
No.(minBUS,D)	26	26	26	26	26	26	26	26	26	26	26
AVG(minBUS,D)	5.96	13.76	9.74	9.94	250.82	313.99	282.41	1449.13	4244.41	2846.77	7.71
No.(minBUS,E)	3	3	3	3	3	3	3	3	3	3	3
AVG(minBUS,E)	4.38	10.42	7.29	8.33	243.33	324.44	283.89	1064.58	3379.63	2222.11	8.00
No.(minBUS,DCM)	15	15	15	15	15	15	15	15	15	15	15
AVG(minBUS,DCM)	5.62	13.87	9.56	9.43	251.44	316.33	283.89	1524.25	4563.66	3043.95	9.43
No.(minBUS,MATADOR)	23	23	23	23	23	23	23	23	23	23	23
AVG(minBUS,MATADOR)	6.27	13.47	9.81	10.65	247.57	309.99	278.78	1544.98	4176.75	2860.87	8.98
No.(minBUS,OTHERS)	18	18	18	18	18	18	18	18	18	18	18
AVG(minBUS,OTHERS)	7.94	17.11	12.45	11.31	225.76	265.19	245.47	1718.87	4244.96	2981.91	8.28

Note : minBUS = mini-bus

Annexure III.12 contd.

QHARBUS(d)		Tata	Leyland	ALL
Age(L)	0	17	0	17
Age(L)	1	37	6	43
Age(L)	2	47	8	55
Age(L)	3	45	13	58
Age(L)	5	9	2	11
Age(L)	7	1	1	2
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		156	30	186

QHARBUS(d)		ALL
dist(L)	0	0
dist(L)	50	22
dist(L)	100	101
dist(L)	200	59
dist(L)	300	3
dist(L)	400	0
dist(L)	500	0
dist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		185

QHARBUS(d)		Tata	Leyland	ALL
milage	2	0	0	0
milage	2.5	0	0	0
milage	3	14	5	19
milage	3.5	0	0	0
milage	4	139	25	164
milage	4.5	0	0	0
milage	5	3	0	3
milage	5.5	0	0	0
milage	6	0	0	0
milage	>6	0	0	0
milage		156	30	186

Note: No information on occupancy.

Annexure III.12 contd.

GHARBUS(d)		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	0
Month/max	jun	0
Month/max	july	1
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	1
		2

GHARBUS(d)		ALL
Month/min	jan	3
Month/min	feb	2
Month/min	mar	1
Month/min	apr	13
Month/min	may	2
Month/min	jun	1
Month/min	july	0
Month/min	aug	0
Month/min.	sep	0
Month/min	oct	0
Month/min	nov	2
Month/min	dec	0
		24

GHARBUS(mini)		OTHERS	MATADOR	dcm	ALL
Age(L)	0	1	0	0	1
Age(L)	1	7	3	4	14
Age(L)	2	6	12	8	26
Age(L)	3	2	6	3	11
Age(L)	5	1	2	0	3
Age(L)	7	0	0	0	0
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		17	23	15	55

Annexure III.12 contd.

GHARBUS(mini)		ALL
dist(L)	0	16
dist(L)	50	21
dist(L)	100	18
dist(L)	200	1
dist(L)	300	0
dist(L)	400	0
dist(L)	500	0
		56

GHARBUS(mini)		OTHERS	MATADOR	DCM	ALL
milage	4	0	0	1	1
milage	4.5	0	0	1	1
milage	5	0	3	0	3
milage	6	4	6	1	11
milage	7	1	0	2	3
milage	8	7	5	3	15
milage	9	1	0	0	1
milage	10	3	2	2	7
milage	12	2	3	1	6
milage	14	0	0	1	1
milage	>14	0	4	3	7
		18	23	15	56

GHARBUS(mini)		ALL
# pass	1	0
# pass	2	0
# pass	3	0
# pass	4	0
# pass	5	0
# pass	6	0
# pass	7	1
# pass	8	0
# pass	9	0
# pass	10	1
		2

===

Annexure III.12 contd.

GHARBUS(mini)		ALL
Month/max	jan	0
Month/max	feb	1
Month/max	mar	2
Month/max	apr	3
Month/max	may	0
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	1
Month/max	nov	0
Month/max	dec	1
		8

GHARBUS(mini)		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	1
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		1

Annexure III.13 : Rajasthan---Two Wheelers (Passenger Transport)

	Fuel use per day(lit)-----------				Number of days of use per year------------			annual fuel con(litres)----			fuel c
	low	high	ave	given	low	high	ave	low	high	ave	(km/li
No.(2W,ALL)	604	604	604	604	604	604	604	604	604	604	6
AVG(2W,ALL)	0.60	1.91	1.21	1.33	243.33	324.44	283.89	144.91	618.49	381.70	39.
No.(2W,B)	176	176	176	176	176	176	176	176	176	176	17
AVG(2W,B)	0.60	1.88	1.20	1.34	243.33	324.44	283.89	145.20	611.03	378.12	40.
No.(2W,C)	298	298	298	298	298	298	298	298	298	298	29
AVG(2W,C)	0.59	1.92	1.21	1.32	243.33	324.44	283.89	144.42	621.53	382.97	39.
No.(2W,D)	130	130	130	130	130	130	130	130	130	130	13
AVG(2W,D)	0.60	1.92	1.21	1.36	243.33	324.44	283.89	145.63	621.63	383.63	38.9
No.(2w,all ab)	287	287	287	287	287	287	287	287	287	287	287
avg(2w,all ab)	0.77	2.19	1.45	1.56	243.33	324.44	283.89	188.20	711.81	450.01	38.97
No.(2w,all sc)	292	292	292	292	292	292	292	292	292	292	292
avg(2w,all sc)	0.44	1.67	1.00	1.13	243.33	324.44	283.89	106.06	540.54	323.30	39.49
No.(2W,all md)	25	25	25	25	25	25	25	25	25	25	2
AVG(2W,all md)	0.42	1.41	0.88	1.05	243.33	324.44	283.89	101.54	457.72	279.63	51.82
No.(2W,BULLET)	6	6	6	6	6	6	6	6	6	6	6
AVG(2W,BULLET)	0.37	1.83	1.03	1.33	243.33	324.44	283.89	90.77	592.24	341.50	31.67
No.(2W,H.HONDA)	28	28	28	28	28	28	28	28	28	28	28
AVG(2W,H.HONDA)	0.42	1.19	0.78	0.91	243.33	324.44	283.89	101.55	387.11	244.33	65.0
No.(2W,RAJDOOT)	240	240	240	240	240	240	240	240	240	240	240
AVG(2W,RAJDOOT)	0.85	2.34	1.56	1.67	243.33	324.44	283.89	206.36	759.74	483.05	36.33
No.(2W,YAMAHA)	13	13	13	13	13	13	13	13	13	13	13
AVG(2W,YAMAHA)	0.35	1.79	1.01	1.15	243.33	324.44	283.89	84.61	581.40	333.01	34.92
No.(2W,bajaj)	87	87	87	87	87	87	87	87	87	87	87
AVG(2W,bajaj)	0.65	2.00	1.28	1.37	243.33	324.44	283.89	157.87	648.91	403.39	36.96
No.(2W,LAMBY)	4	4	4	4	4	4	4	4	4	4	4
AVG(2W,LAMBY)	0.32	1.49	0.85	0.75	243.33	324.44	283.89	76.77	482.80	279.79	46.5
No.(2W,LML)	56	56	56	56	56	56	56	56	56	56	56
AVG(2W,LML)	0.22	1.24	0.68	0.84	243.33	324.44	283.89	53.50	402.44	227.97	46.42
No.(2W,PRIYA)	88	88	88	88	88	88	88	88	88	88	88
AVG(2W,PRIYA)	0.39	1.67	0.97	1.10	243.33	324.44	283.89	94.65	542.60	318.63	36.1

Annexure III.13 contd.

No.(2W,CHETAK)	49	49	49	49	49	49	49	49	49	49	49
AVG(2W,CHETAK)	0.40	1.56	0.93	1.14	243.33	324.44	283.89	96.95	507.07	302.01	41.45
No.(2W,oth sc)	8	8	8	8	8	8	8	8	8	8	8
AVG(2W,oth sc)	0.44	1.66	1.00	1.13	243.33	324.44	283.89	106.65	539.77	323.21	39.38

QRAJ2W		OTHERS	YAMAHA	MOPED	RAJDOOT	PRIYA	LML	LAMBERETT	H.HONDA	CHETAK	BULLET	BAJAJ	ALL
Age(L)	0	0	0	1	10	13	11	0	11	2	0	5	53
Age(L)	1	1	1	5	19	12	8	1	7	11	0	5	70
Age(L)	2	1	7	9	50	33	20	0	8	16	1	25	170
Age(L)	3	2	5	7	59	20	13	0	1	18	4	14	143
Age(L)	5	3	0	2	35	8	3	2	1	2	1	14	71
Age(L)	7	1	0	1	44	1	1	0	0	0	0	14	62
Age(L)	10	0	0	0	21	1	0	0	0	0	0	10	32
Age(L)	15	0	0	0	2	0	0	1	0	0	0	0	3
Age(L)	20	0	0	0	0	0	0	0	0	0	0	0	0
		8	13	25	240	88	56	4	28	49	6	87	604

QRAJ2W		ALL
dist(L)	0	386
dist(L)	50	190
dist(L)	100	26
dist(L)	200	0
dist(L)	300	0
dist(L)	400	0
		602

QRAJ2W		OTHERS	YAMAHA	MOPED	RAJDOOT	PRIYA	LML	LAMBERETT	H.HONDA	CHETAK	BULLET	BAJAJ	ALL
milage	20	0	0	1	1	0	0	0	0	0	0	0	2
milage	25	0	0	0	10	0	0	1	0	0	0	0	11
milage	30	3	5	1	52	7	0	0	0	3	4	22	97
milage	35	0	4	1	49	46	3	0	1	9	2	21	136
milage	40	1	3	0	68	31	14	0	0	16	0	26	159
milage	45	2	1	1	56	4	6	0	1	8	0	13	92
milage	50	2	0	5	4	0	21	0	1	9	0	2	44
milage	55	0	0	4	0	0	12	2	4	4	0	2	28
milage	60	0	0	12	0	0	0	1	5	0	0	1	19
milage	70	0	0	0	0	0	0	0	5	0	0	0	5
milage	80	0	0	0	0	0	0	0	11	0	0	0	11
		8	13	25	240	88	56	4	28	49	6	87	604

Annexure III.13 contd.

QRAJ2W		ALL
# pass	1	7
# pass	2	17
# pass	3	0
# pass	4	0
		24

QRAJ2W	ALL
Cheap	60
More rel	233
Less Cro	230
Faster	129
Any 2	94
Any 3	84
All	63

Note: No information on months of max & min use.

Annexure III.14 : Rajasthan----Three WHeelers (Passenger Transport)

	Fuel use per day(lit)---------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(d/3W,ALL)	91	91	91	91	91	91	91	91	91	91	91
AVG(d/3W,ALL)	6.96	12.88	9.92	10.93	243.33	324.44	283.89	1693.98	4180.16	2937.07	24.37
No.(d/3W,B)	25	25	25	25	25	25	25	25	25	25	25
AVG(d/3W,B)	11.68	21.25	16.47	18.20	243.33	324.44	283.89	2842.39	6894.78	4868.59	15.84
No.(d/3W,C)	45	45	45	45	45	45	45	45	45	45	45
AVG(d/3W,C)	5.94	11.13	8.54	9.18	243.33	324.44	283.89	1446.61	3610.26	2528.43	26.14
No.(d/3W,D)	19	19	19	19	19	19	19	19	19	19	19
AVG(d/3W,D)	3.66	6.92	5.29	6.24	243.33	324.44	283.89	889.88	2245.40	1567.64	30.47
No.(d/3W,E)	2	2	2	2	2	2	2	2	2	2	2
AVG(d/3W,E)	2.24	4.47	3.35	4.00	243.33	324.44	283.89	543.86	1450.28	997.07	33.00
No.(d/3W,BAJAJ)	8	8	8	8	8	8	8	8	8	8	8
AVG(d/3W,BAJAJ)	7.94	15.88	11.91	13.63	243.33	324.44	283.89	1932.63	5153.67	3543.15	16.81
No.(d/3W,LAMBY)	12	12	12	12	12	12	12	12	12	12	12
AVG(d/3W,LAMBY)	3.60	7.19	5.40	6.25	243.33	324.44	283.89	875.38	2334.35	1604.87	27.63
No.(d/3W,VIKRAM)	67	67	67	67	67	67	67	67	67	67	67
AVG(d/3W,VIKRAM)	7.47	13.52	10.49	11.35	243.33	324.44	283.89	1816.82	4386.96	3101.89	24.80
No.(d/3W,OTHERS)	4	4	4	4	4	4	4	4	4	4	4
AVG(d/3W,OTHERS)	6.64	13.27	9.96	12.50	243.33	324.44	283.89	1614.98	4306.61	2960.80	22.50
No.(p/3W,ALL)	73	73	73	73	73	73	73	73	73	73	73
AVG(p/3W,ALL)	5.95	10.90	8.42	8.89	243.33	324.44	283.89	1447.72	3536.97	2492.35	23.41
No.(d/3W,B)	14	14	14	14	14	14	14	14	14	14	14
AVG(d/3W,B)	4.32	8.64	6.48	7.25	243.33	324.44	283.89	1051.80	2804.81	1928.31	23.46
No.(d/3W,C)	43	43	43	43	43	43	43	43	43	43	43
AVG(d/3W,C)	7.22	12.79	10.00	10.53	243.33	324.44	283.89	1756.61	4149.99	2953.30	22.55
No.(d/3W,D)	16	16	16	16	16	16	16	16	16	16	16
AVG(d/3W,D)	3.96	7.80	5.87	5.94	243.33	324.44	283.89	964.01	2530.15	1747.08	25.69
No.(p/3W,API)	3	3	3	3	3	3	3	3	3	3	3
AVG(p/3W,API)	4.40	8.80	6.60	7.33	243.33	324.44	283.89	1071.18	2856.48	1963.83	22.83
No.(p/3W,BAJAJ)	38	38	38	38	38	38	38	38	38	38	38
AVG(p/3W,BAJAJ)	6.49	11.57	9.03	9.51	243.33	324.44	283.89	1578.23	3754.49	2666.36	22.67

Annexure III.14 contd.

No.(p/3W,LAMBY)	21	21	21	21	21	21	21	21	21	21	21
AVG(p/3W,LAMBY)	4.26	8.32	6.29	6.56	243.33	324.44	283.89	1035.74	2700.18	1867.96	24.10
No.(p/3W,VIKRAM)	6	6	6	6	6	6	6	6	6	6	6
AVG(p/3W,VIKRAM)	11.36	20.11	15.73	16.67	243.33	324.44	283.89	2763.31	6523.92	4643.62	20.08
No.(p/3W,OTHERS)	5	5	5	5	5	5	5	5	5	5	5
AVG(p/3W,OTHERS)	3.42	6.85	5.14	5.59	243.33	324.44	283.89	833.39	2222.39	1527.89	30.50

Note : d/3W = 3-wheelers using diesel (HSD)
p/3W = 3-wheelers using petrol (MS)

BRAJ(d/3W)		OTHERS	VIKRAM	LAMBERETT	BAJAJ	ALL
Age(L)	0	0	1	0	0	1
Age(L)	1	1	6	0	0	7
Age(L)	2	1	23	1	0	25
Age(L)	3	2	12	4	2	20
Age(L)	5	0	15	3	5	23
Age(L)	7	0	5	2	0	7
Age(L)	10	0	5	2	1	8
Age(L)	15	0	0	0	0	0
Age(L)	20	0	0	0	0	0
		4	67	12	8	91

BRAJ(d/3W)		ALL
dist(L)	0	0
dist(L)	50	3
dist(L)	100	74
dist(L)	200	14
dist(L)	300	0
dist(L)	400	0
		91

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Annexure III.14 contd.

ORAJ(d/3W)		OTHRES	VIKRAM	LAMBERETT	BAJAJ	ALL
milage	20	2	20	0	4	26
milage	25	0	1	7	2	10
milage	30	0	9	0	2	11
milage	35	2	37	5	0	44
milage	40	0	0	0	0	0
milage	45	0	0	0	0	0
milage	50	0	0	0	0	0
milage	55	0	0	0	0	0
milage	60	0	0	0	0	0
milage	70	0	0	0	0	0
milage	80	0	0	0	0	0
		4	67	12	8	91

ORAJ(d/3W)		ALL
# pass	1	0
# pass	2	0
# pass	3	0
# pass	4	0
# pass	5	1
# pass	6	1
# pass	7	0
# pass	8	4
# pass	9	1
# pass	10	10
# pass	>10	9
		26

ORAJ(d/3W	ALL
Cheap	0
More rel	4
Less Cro	4
Faster	2
Any 2	2
Any 3	2
All	0

ORAJ(p/3W)		OTHERS	VIKRAM	LAMBERETT	BAJAJ	API	ALL
Age(L)	0	0	0	0	0	0	0
Age(L)	1	2	1	0	1	0	4
Age(L)	2	1	0	1	4	0	6
Age(L)	3	1	2	2	9	1	15
Age(L)	5	1	0	6	15	0	22
Age(L)	7	0	2	6	7	1	16
Age(L)	10	0	1	5	2	0	8
Age(L)	15	0	0	1	0	0	1
Age(L)	20	0	0	0	0	0	0
		5	6	21	38	2	72

Annexure III.14 contd.

QRAJ(p/3W)		ALL
dist(L)	0	1
dist(L)	50	3
dist(L)	100	55
dist(L)	200	14
dist(L)	300	0
dist(L)	400	0
		73

QRAJ(p/3W)		OTHERS	VIKRAM	LAMBERETT	BAJAJ	API	ALL
milage	20	1	3	2	9	0	15
milage	25	0	0	13	19	3	35
milage	30	1	0	4	8	0	13
milage	35	3	3	2	0	0	8
milage	40	0	0	0	2	0	2
milage	45	0	0	0	0	0	0
milage	50	0	0	0	0	0	0
milage	55	0	0	0	0	0	0
milage	60	0	0	0	0	0	0
milage	70	0	0	0	0	0	0
milage	80	0	0	0	0	0	0
		5	6	21	38	3	73

QRAJ(p/3W)		ALL
# pass	1	0
# pass	2	0
# pass	3	0
# pass	4	0
# pass	5	0
# pass	6	2
# pass	7	0
# pass	8	2
# pass	9	1
# pass	10	1
		6

QRAJ(p/3W)	ALL
Cheap	0
More rel	2
Less Cro	2
Faster	1
Any 2	1
Any 3	1
All	0

Note: d/3W -- No information on months of max & min use.
p/3W -- No information on months of max & min use.

Annexure III.15 : Rajasthan----Cars (Passenger Transport)

	Fuel use per day(lit)-----------				Number of days of use per year------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(CAR,ALL)	176	176	176	176	176	176	176	176	176	176	176
AVG(CAR,ALL)	1.61	5.33	3.34	3.79	242.41	323.83	283.12	389.66	1726.66	1058.16	14.23
No.(CAR,B)	58	58	58	58	58	58	58	58	58	58	58
AVG(CAR,B)	2.43	6.49	4.36	4.53	242.65	323.99	283.32	589.65	2103.35	1346.50	14.04
No.(CAR,C)	80	80	80	80	80	80	80	80	80	80	80
AVG(CAR,C)	1.13	4.59	2.72	3.25	242.71	324.03	283.37	273.27	1486.67	879.97	14.55
No.(CAR,D)	38	38	38	38	38	38	38	38	38	38	38
AVG(CAR,D)	1.36	5.12	3.10	3.79	241.42	323.17	282.29	329.46	1656.95	993.20	13.83
No.(CAR,AMBY)	22	22	22	22	22	22	22	22	22	22	22
AVG(CAR,AMBY)	3.57	9.58	6.42	7.06	242.83	324.11	283.47	866.23	3103.13	1984.68	9.36
No.(CAR,FIAT)	36	36	36	36	36	36	36	36	36	36	36
AVG(CAR,FIAT)	1.70	5.95	3.67	3.88	242.74	324.05	283.40	412.31	1929.13	1170.72	11.86
No.(CAR,M.CAR)	98	98	98	98	98	98	98	98	98	98	98
AVG(CAR,M.CAR)	1.29	4.38	2.72	3.20	242.06	323.60	282.83	312.25	1416.90	864.57	15.80
No.(CAR,M.VAN)	20	20	20	20	20	20	20	20	20	20	20
AVG(CAR,M.VAN)	0.84	4.21	2.40	2.88	243.06	324.26	283.66	204.00	1365.94	784.97	16.13

@RAJCAR		M.VAN	M.CAR	FIAT	AMBY	ALL
Age(L)	0	2	14	2	0	18
Age(L)	1	9	28	4	3	44
Age(L)	2	6	35	10	8	59
Age(L)	3	3	19	13	4	39
Age(L)	5	0	0	6	3	9
Age(L)	7	0	0	1	3	4
Age(L)	10	0	0	0	1	1
Age(L)	15	0	0	0	0	0
Age(L)	20	0	0	0	0	0
		20	96	36	22	174

@RAJCAR		ALL
dist(L)	0	124
dist(L)	50	41
dist(L)	100	10
dist(L)	200	0
		175

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Annexure III.15 contd.

ORAJCAR		M.VAN	M.CAR	FIAT	AMBY	ALL
milage	7	0	0	0	0	0
milage	8	0	0	0	5	5
milage	9	0	0	0	5	5
milage	10	1	1	3	8	13
milage	12	1	1	27	4	33
milage	14	0	2	6	0	8
milage	15	1	18	0	0	19
milage	16	7	52	0	0	59
milage	17	6	15	0	0	21
milage	18	4	7	0	0	11
milage	>18	0	2	0	0	2
		20	98	36	22	176

ORAJCAR		ALL
# pass	1	0
# pass	2	0
# pass	3	2
# pass	4	4
# pass	5	0
# pass	6	0
# pass	7	0
# pass	8	0
# pass	9	0
# pass	10	0
		6

ORAJCAR	ALL
Cheap	4
More rel	56
Less Cro	54
Faster	27
Any 2	27
Any 3	23
All	4

Note : No information on months of max & min use.

Annexure III.16 : Rajasthan----Jeeps (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(d/JEEP,ALL)	326	326	326	326	326	326	326	326	326	326	326
AVG(d/JEEP,ALL)	11.05	20.06	15.51	16.31	243.33	324.44	283.89	2688.21	6508.97	4598.59	9.44
No.(d/JEEP,b)	57	57	57	57	57	57	57	57	57	57	57
AVG(d/JEEP,b)	10.99	20.03	15.47	15.46	243.33	324.44	283.89	2674.83	6497.19	4586.01	9.42
No.(d/JEEP,C)	161	161	161	161	161	161	161	161	161	161	161
AVG(d/JEEP,C)	10.58	19.71	15.10	16.09	243.33	324.44	283.89	2574.10	6394.50	4484.30	9.41
No.(d/JEEP,D)	56	56	56	56	56	56	56	56	56	56	56
AVG(d/JEEP,D)	11.25	20.18	15.67	17.10	243.33	324.44	283.89	2736.56	6547.02	4641.79	9.44
No.(d/JEEP,E)	52	52	52	52	52	52	52	52	52	52	52
AVG(d/JEEP,E)	12.35	21.07	16.64	17.05	243.33	324.44	283.89	3004.11	6835.32	4919.72	9.54
No.(d/JEEP,MAHINDRA)	324	324	324	324	324	324	324	324	324	324	324
AVG(d/JEEP,MAHINDRA)	11.01	20.01	15.46	16.28	243.33	324.44	283.89	2679.28	6492.21	4585.74	9.44
No.(d/JEEP,MATADOR)	2	2	2	2	2	2	2	2	2	2	2
AVG(d/JEEP,MATADOR)	16.99	28.43	22.71	20.50	243.33	324.44	283.89	4135.08	9224.40	6679.74	8.75
No.(p/JEEP,ALL)	13	13	13	13	13	13	13	13	13	13	13
AVG(p/JEEP,ALL)	1.60	5.33	3.33	3.35	243.33	324.44	283.89	388.51	1729.02	1058.76	13.50
No.(p/JEEP,B)	3	3	3	3	3	3	3	3	3	3	3
AVG(p/JEEP,B)	3.39	7.81	5.53	5.17	243.33	324.44	283.89	824.86	2532.40	1678.63	14.50
No.(p/JEEP,C)	10	10	10	10	10	10	10	10	10	10	10
AVG(p/JEEP,C)	1.06	4.59	2.67	2.80	243.33	324.44	283.89	257.60	1488.00	872.80	13.20
No.(p/JEEP,GYPSY)	13	13	13	13	13	13	13	13	13	13	13
AVG(p/JEEP,GYPSY)	1.60	5.33	3.33	3.35	243.33	324.44	283.89	388.51	1729.02	1058.76	13.50

Note : d/JEEP = Jeeps using diesel (HSD)
p/JEEP = Jeeps using petrol (MS)
Note : All pJEEP's are Gypsies.

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Annexure III.16 contd.

QRAJJEEP		GYPSY/p	MATADOR/d	MAHIND/d	ALL
Age(L)	0	1	0	5	6
Age(L)	1	5	0	13	18
Age(L)	2	5	0	53	58
Age(L)	3	2	1	71	74
Age(L)	5	0	0	74	74
Age(L)	7	0	0	52	52
Age(L)	10	0	0	44	44
Age(L)	15	0	1	7	8
Age(L)	20	0	0	2	2
		13	2	321	336

QRAJJEEP		GYPSY/p	MATADOR/d	MAHIND/d	ALL
dist(L)	0	9	0	45	66
dist(L)	50	3	0	44	47
dist(L)	100	1	1	143	144
dist(L)	200	0	1	77	76
dist(L)	300	0	0	3	3
dist(L)	400	0	0	0	0
		13	2	312	336

QRAJJEEP		GYPSY/p	MATADOR/d	MAHIND/d	ALL
milage	5	1	0	0	0
milage	6	4	0	3	3
milage	7	1	0	18	18
milage	8	13	0	57	57
milage	9	0	2	44	46
milage	10	2	0	153	153
milage	11	0	0	38	38
milage	12	4	0	7	13
milage	13	0	0	0	1
milage	14	1	0	2	3
milage	>15	42	0	2	7
		0	2	324	339

QRAJJEEP		ALL/pJEEP	ALL/dJEEP
# pass	1	0	0
# pass	4	0	1
# pass	5	0	0
# pass	6	0	4
# pass	7	0	1
# pass	8	0	13
# pass	9	0	0
# pass	10	0	2
# pass	12	0	4
# pass	15	0	24
# pass	18	0	13
# pass	>20	0	6
		0	68

QRAJJEEP	ALL
Cheap	5
More rel	15
Less Cro	15
Faster	12
Any 2	3
Any 3	7
All	5

Note: No information on months of max & min use.

Annexure III.17 : Rajasthan----Buses/Mini-Buses (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel [illegible]
	low	high	ave	given	low	high	ave	low	high	ave	(km/[illegible]
No.(BUS,ALL)	35	35	35	35	35	35	35	35	35	35	35
AVG(BUS,ALL)	71.79	103.14	87.47	92.43	243.33	324.44	283.89	17468.68	33464.13	25466.41	3.24
No.(BUS,B)	6	6	6	6	6	6	6	6	6	6	6
AVG(BUS,B)	77.62	111.27	94.44	101.67	243.33	324.44	283.89	18887.30	36100.88	27494.09	3.04
No.(BUS,C)	23	23	23	23	23	23	23	23	23	23	23
AVG(BUS,C)	72.02	103.08	87.35	91.52	243.33	324.44	283.89	17524.53	33445.32	25484.93	[illegible]
No.(BUS,D)	6	6	6	6	6	6	6	6	6	6	6
AVG(BUS,D)	65.08	95.24	80.16	86.67	243.33	324.44	283.89	15835.98	30899.47	23367.72	[illegible]
No.(BUS,TATA)	35	35	35	35	35	35	35	35	35	35	35
AVG(BUS,TATA)	71.79	103.14	87.47	92.43	243.33	324.44	283.89	17468.68	33464.13	25466.41	3.24
MINIBUS											
No.(MINIBUS,ALL	8	8	8	8	8	8	8	8	8	8	8
AVG(MINIBUS,ALL	18.24	29.34	23.79	22.88	243.33	324.44	283.89	4439.24	9520.62	6979.93	8.73
No.(MINIBUS,C)	3	3	3	3	3	3	3	3	3	3	3
AVG(MINIBUS,C)	12.84	21.76	17.30	17.67	243.33	324.44	283.89	3125.16	7061.44	5093.30	[illegible]
No.(MINIBUS,D)	2	2	2	2	2	2	2	2	2	2	2
AVG(MINIBUS,D)	22.88	34.31	28.59	25.75	243.33	324.44	283.89	5566.45	11132.90	8349.67	[illegible]
No.(MINIBUS,E)	3	3	3	3	3	3	3	3	3	3	3
AVG(MINIBUS,E)	20.56	33.61	27.08	26.17	243.33	324.44	283.89	5001.85	10904.94	7953.40	[illegible]

QRAJBUS(d)		MINIBUS	BUS(TATA)	ALL
Age(L)	0	0	0	0
Age(L)	1	0	2	2
Age(L)	2	0	4	4
Age(L)	3	0	12	12
Age(L)	5	5	6	11
Age(L)	7	2	7	9
Age(L)	8	0	2	2
Age(L)	10	1	0	1
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		8	33	41

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Annexure III.17 contd.

GRAJBUS(d)		ALL
dist(L)	0	0
dist(L)	50	1
dist(L)	100	9
dist(L]	200	18
dist(L)	300	13
dist(L)	400	2
dist(L)	500	0
		43

GRAJBUS(d)		MINIBUS	BUS(TATA)	ALL
mileage	5	0	35	35
mileage	7	0	0	1
mileage	8	0	0	1
mileage	9	0	0	3
mileage	10	0	0	3
mileage	12	0	0	0
mileage	15	0	0	0
mileage	>15	8	0	0
		8	35	43

Note: No information on occupancy and
months of max & min use.

Annexure III.18 : Nainital — Two Wheelers (Passenger Transport)

	Fuel use per day(lit)			Number of days of use per year				annual fuel cum(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(2W,ALL)	478	478	478	478	.478	478	478	478	478	478	478
AVG(2W,ALL)	2.13	4.33	3.22	3.16	304.08	342.22	323.15	646.94	1508.48	1077.71	35.81
No.(2W,B)	82	82	82	82	82	82	82	82	82	82	82
AVG(2W,B)	1.66	3.44	2.55	2.56	304.17	334.58	319.38	506.30	1165.62	835.96	39.45
No.(2W,C)	211	211	211	211	211	211	211	211	211	211	211
AVG(2W,C)	2.40	4.81	3.60	3.45	304.17	348.28	326.22	728.56	1695.70	1212.13	34.10
No.(2W,D)	185	185	185	185	185	185	185	185	185	185	185
AVG(2W,D)	2.03	4.17	3.09	3.11	303.95	338.69	321.32	616.19	1446.93	1031.56	36.14
No.(2w, all mb	236	236	236	236	236	236	236	236	236	236	236
avg(2w, all mb	1.76	3.57	2.66	2.56	304.17	334.33	319.25	534.85	1206.11	870.48	39.87
No.(2w, all sc	238	238	238	238	238	238	238	238	238	238	238
avg(2w, all sc	2.52	5.12	3.81	3.80	304.00	350.69	327.34	765.32	1826.36	1295.84	31.20
Mc.(2w, all md	4	4	4	4	4	4	4	4	4	4	4
avg(2w, all md	0.71	1.43	1.07	1.00	304.17	304.17	304.17	217.26	434.52	325.89	70.00
No.(2W,BULLET)	49	49	49	49	49	49	49	49	49	49	49
AVG(2W,BULLET)	2.61	5.22	3.92	3.53	304.17	365.00	334.58	794.56	1906.94	1350.75	25.00
No.(2W,H.HONDA	40	40	40	40	40	40	40	40	40	40	40
AVG(2W,H.HONDA	1.11	2.20	1.65	1.51	304.17	304.17	304.17	337.30	668.08	502.69	70.00
No.(2W,RAJDOOT	48	48	48	48	48	48	48	48	48	48	48
AVG(2W,RAJDOOT	2.02	4.08	3.05	3.02	304.17	307.97	306.07	613.65	1253.71	933.68	35.21
No.(2W,YAMAHA)	49	49	49	49	49	49	49	49	49	49	49
AVG(2W,YAMAHA)	1.31	2.86	2.07	1.98	304.17	365.00	334.58	397.28	1042.86	720.07	40.00
No.(2W,YEZDI)	50	50	50	50	50	50	50	50	50	50	50
AVG(2W,YEZDI)	1.64	3.27	2.45	2.56	304.17	323.63	313.90	497.53	1064.00	780.77	34.70
No.(2W,BAJAJ)	56	56	56	56	56	56	56	56	56	56	56
AVG(2W,BAJAJ)	2.23	4.52	3.37	3.26	303.44	353.05	328.25	677.65	1610.58	1144.12	30.71
No.(2W,CHETAK)	41	41	41	41	41	41	41	41	41	41	41
AVG(2W,CHETAK)	2.20	4.72	3.43	3.54	304.17	338.29	321.23	667.68	1656.84	1162.26	30.00

Annexure III.10 contd.

No.(2W,LAMBY)	20	20	20	20	20	20	20	20	20	20	20
AVG(2W,LAMBY)	3.33	6.67	5.00	6.00	304.17	365.00	334.58	1013.89	2433.33	1723.61	30.00
No.(2W,PRIYA)	48	48	48	48	48	48	48	48	48	48	48
AVG(2W,PRIYA)	2.50	5.00	3.75	3.31	304.17	365.00	334.58	760.42	1825.00	1292.71	30.00
No.(2W,VESPA)	70	70	70	70	70	70	70	70	70	70	70
AVG(2W,VESPA)	2.81	5.63	4.22	4.21	304.17	344.14	324.15	835.60	1982.34	1418.97	33.50
No.(2W,oth sc)	3	3	3	3	3	3	3	3	3	3	3
AVG(2W,oth sc)	0.17	1.67	0.83	1.00	304.17	304.17	304.17	50.69	506.94	278.82	30.00

PWAN2W.WK1		oth sc	moped	YEZDI	YAMAHA	VESPA	R'DOOT	PRIYA	LAMBY	HONDA	CHET	BULLET	BAJ	ALL
Age(L)	0-1	3	0	31	3	11	20	10	2	5	3	12	12	112
Age(L)	1-2	0	4	11	26	37	9	17	3	31	12	21	24	195
Age(L)	2-3	0	0	6	18	17	5	20	11	4	15	15	13	124
Age(L)	3-5	0	0	2	2	5	10	1	4	0	11	0	7	42
Age(L)	5-7	0	0	0	0	0	4	0	0	0	0	0	0	4
Age(L)	7-10	0	0	0	0	0	0	0	0	0	0	0	0	0
Age(L)	10-15	0	0	0	0	0	0	0	0	0	0	0	0	0
Age(L)	15-20	0	0	0	0	0	0	0	0	0	0	0	0	0
Age(L)	)20	0	0	0	0	0	0	0	0	0	0	0	0	0
		3	4	50	49	70	48	48	20	40	41	48	56	477

		oth sc	moped	YEZDI	YAMAHA	VESPA	R'DOOT	PRIYA	LAMBY	HONDA	CHET	BULLET	BAJ	ALL
dist(L)	0	3	0	0	12	0	2	0	0	1	10	0	2	30
dist(L)	50	0	4	45	24	17	28	24	0	18	9	34	32	235
dist(L)	100	0	0	5	13	53	18	24	20	20	22	15	22	212
dist(L)	200	0	0	0	0	0	0	0	0	1	0	0	0	1
dist(L)	300	0	0	0	0	0	0	0	0	0	0	0	0	0
		3	4	50	49	70	48	48	20	40	41	49	56	478

		oth sc	moped	YEZDI	YAMAHA	VESPA	R'DOOT	PRIYA	LAMBY	HONDA	CHET	BULLET	BAJ	ALL
milage	20	0	0	0	0	1	0	0	0	0	0	0	0	1
milage	25	0	0	0	0	0	0	0	0	0	0	49	0	49
milage	30	3	0	25	0	46	21	48	20	0	41	0	55	259
milage	35	0	0	3	0	19	4	0	0	0	0	0	0	26
milage	40	0	0	22	49	0	23	0	0	0	0	0	0	94
milage	45	0	0	0	0	0	0	0	0	0	0	0	0	0
milage	50	0	0	0	0	0	0	0	0	0	0	0	0	0
milage	55	0	0	0	0	0	0	0	0	0	0	0	0	0
milage	60	0	0	0	0	0	0	0	0	0	0	0	0	0
milage	70	0	4	0	0	4	0	0	0	40	0	0	1	49
milage	80	0	0	0	0	0	0	0	0	0	0	0	0	0
		3	4	50	49	70	48	48	20	40	41	49	56	478

Annexure III.18 contd.

		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	111
Month/max	jun	367
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		478

		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	111
Month/min	july	367
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		478

* 454 will shift to pub. modes of transport if it is cheaper.

* NO INFO ON # PASSENGERS

Annexure III.19 : Nainital——Three Wheelers (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel co
All Bajaj	low	high	ave	given	low	high	ave	low	high	ave	(km/lit
no(3w,all)	121	121	121	121	121	121	121	121	121	121	121
avg(3w,all)	3.32	6.53	4.92	5.97	247.36	321.43	284.39	820.08	2095.45	1457.77	19.16
no(b)	22	22	22	22	22	22	22	22	22	22	22
avg(b)	2.40	4.89	3.64	3.59	243.33	320.76	282.05	583.45	1566.92	1075.18	20.00
no(c)	62	62	62	62	62	62	62	62	62	62	62
avg(c)	3.16	6.40	4.78	6.02	250.20	323.14	286.67	790.36	2060.41	1425.39	18.92
no(d)	37	37	37	37	37	37	37	37	37	37	37
avg(d)	4.13	7.72	5.93	7.30	244.98	318.96	281.97	1010.60	2468.41	1739.50	19.05

QNAN3W		all
Age(L)	0	21
Age(L)	1	20
Age(L)	2	11
Age(L)	3	49
Age(L)	5	14
Age(L)	7	5
Age(L)	10	0
Age(L)	15	0
Age(L)	20	0
		120

QNAN3W		all
dist(L)	0	2
dist(L)	50	96
dist(L)	100	20
dist(L)	200	3
dist(L)	300	0
		121

QNAN3W		All
milage	10	2
milage	15	16
milage	17	2
milage	20	100
milage	>20	1
		121

Annexure III.19 contd.

QMAN3W

Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	0
Month/max	jun	52
Month/max	july	62
Month/max	aug	1
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		115

QMAN3W

Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	38
Month/min	july	59
Month/min	aug	2
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		99

* no response for # pass & reasons for shifting to pub. transport.

Annexure III.20 : Nainital -- Cars (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(CAR,ALL)	238	238	238	238	238	238	238	238	238	238	238.
AVG(CAR,ALL)	7.69	15.52	11.58	12.35	261.87	301.64	281.76	2120.76	4846.86	3483.81	10.25
No.(CAR,B)	53	53	53	53	53	53	53	53	53	53	53
AVG(CAR,B)	7.01	14.78	10.85	11.94	256.49	299.35	277.92	2026.86	4682.25	3354.56	10.87
No.(CAR,C)	93	93	93	93	93	93	93	93	93	93	93
AVG(CAR,C)	7.65	15.29	11.46	12.12	266.93	301.99	284.46	2121.84	4759.05	3440.45	10.30
No.(CAR,D)	92	92	92	92	92	92	92	92	92	92	92
AVG(CAR,D)	8.11	16.18	12.13	12.82	259.86	302.62	281.24	2173.76	5030.44	3602.10	9.86
No.(CAR,AMBY)	83	83	83	83	83	83	83	83	83	83	83
AVG(CAR,AMBY)	8.13	16.42	12.23	12.98	249.34	285.26	267.30	2208.98	4954.25	3581.62	8.77
No.(CAR,FIAT)	86	86	86	86	86	86	86	86	86	86	86
AVG(CAR,FIAT)	8.59	17.35	12.95	13.99	265.69	306.43	286.06	2360.62	5383.22	3871.92	9.56
No.(CAR,MARUTI)	69	69	69	69	69	69	69	69	69	69	69
AVG(CAR,MARUTI)	6.02	12.17	9.08	9.55	272.19	315.39	293.79	1715.68	4049.16	2882.42	12.91

QNANCAR		MARUTI	FIAT	AMBY	ALL
Age(L)	0	10	17	11	38
Age(L)	1	34	49	28	111
Age(L)	2	19	13	23	55
Age(L)	3	5	2	18	25
Age(L)	5	1	3	0	4
Age(L)	7	0	1	3	4
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		69	85	83	237

QNANCAR		ALL
dist(L)	0	24
dist(L)	50	90
dist(L)	100	119
dist(L)	200	5
dist(L)	300	0
		238

Annexure III.20 contd.

QNANCAR		MARUTI	FIAT	AMBY	ALL
milage	7	0	0	1	1
milage	8	0	46	49	95
milage	9	0	1	0	1
milage	10	8	16	33	57
milage	12	50	21	0	71
milage	14	0	0	0	0
milage	15	0	0	0	0
milage	16	1	1	0	2
milage	17	1	1	0	2
milage	18	1	0	0	1
milage	>18	8	0	0	8
		69	86	83	238

QNANCAR		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	72
Month/max	jun	95
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		167

QNANCAR	ALL
Cheap	162
More rel	0
Less Cro	0
Faster	0
Any 2	0
Any 3	0
All	0

QNANCAR		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	73
Month/min	july	94
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		167

Note: No information on occupancy.

Annexure III.21 : Nainital -- Taxi (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
no(p/all)	135	135	135	135	135	135	135	135	135	135	135
avg(p/all)	6.95	13.21	10.08	12.13	254.23	325.96	290.10	1801.37	4339.93	3070.65	13.42
no(p/B)	34	34	34	34	34	34	34	34	34	34	34
avg(p/B)	4.40	8.81	6.60	8.24	245.12	324.44	284.78	1101.19	2888.81	1995.00	14.15
no(p/C)	34	34	34	34	34	34	34	34	34	34	34
avg(p/C)	8.75	16.32	12.54	14.68	275.88	339.99	307.93	2441.20	5604.01	4022.61	12.06
no(p/D)	67	67	67	67	67	67	67	67	67	67	67
avg(p/D)	7.34	13.86	10.60	12.82	247.87	319.60	283.74	1831.99	4434.85	3133.42	13.75
no(ambass)	26	26	26	26	26	26	26	26	26	26	26
avg(ambass)	7.76	15.26	11.51	15.15	239.10	313.58	276.34	1825.54	4748.10	3286.82	10.38
no(fiat)	30	30	30	30	30	30	30	30	30	30	30
avg(fiat)	8.17	14.28	11.22	13.78	249.42	314.98	282.20	2083.54	4523.07	3303.31	11.23
no(maruti)	79	79	79	79	79	79	79	79	79	79	79
avg(maruti)	6.23	12.12	9.18	10.51	261.04	334.20	297.62	1686.26	4136.05	2911.15	15.25

NAINTAXI		maruti	fiat	ambassado	ALL
Age(L)	0	9	13	6	28
Age(L)	1	16	9	6	31
Age(L)	2	31	2	2	35
Age(L)	3	15	5	6	26
Age(L)	5	6	1	4	11
Age(L)	7	2	0	2	4
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		79	30	26	135

NAINTAXI		maruti	fiat	ambassado	ALL
dist(L)	0	0	0	0	0
dist(L)	50	32	20	12	64
dist(L)	100	43	5	13	61
dist(L)	200	4	3	1	8
dist(L)	300	0	2	0	2
dist(L)	400	0	0	0	0
		79	30	26	135

Annexure III.21 contd.

QNANTAXI			maruti	fiat	ambassado	ALL
mileage	upto 8	8	0	4	0	4
mileage	8-10	10	28	19	24	71
mileage	10-12	12	1	0	0	1
mileage	12-15	15	10	7	2	19
mileage	15-17	17	40	0	0	40
mileage	17-20	20	0	0	0	0
			79	30	26	135

QNANTAXI		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	2
Month/max	jun	67
Month/max	july	53
Month/max	aug	4
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		126

QNANTAXI		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	37
Month/min	july	81
Month/min	aug	2
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		120

Note : No information on occupancy.

Annexure III.22 : Nainital----Jeeps (Passenger Transport)

	Fuel use per day(lit)---				Number of days of use per year---			annual fuel con(litres)---			---fuel c
	low	high	ave	given	low	high	ave	low	high	ave	(km/li
[illegible] (d/JEEP)											
No.(djeep,ALL)	63	63	63	63	63	63	63	63	63	63	6
AVG(djeep,ALL)	13.73	25.52	19.63	20.02	297.41	358.56	327.99	4162.62	9284.42	6723.52	8.1
No.(djeep,B)	10	10	10	10	10	10	10	10	10	10	1
AVG(djeep,B)	12.50	25.00	18.75	19.50	304.17	365.00	334.58	3802.08	9125.00	6463.54	8.4
No.(djeep,C)	37	37	37	37	37	37	37	37	37	37	3
AVG(djeep,C)	14.87	26.43	20.65	21.92	295.95	357.33	326.64	4506.41	9610.18	7058.29	8.9
No.(djeep,D)	16	16	16	16	16	16	16	16	16	16	1
AVG(djeep,D)	11.88	23.75	17.81	15.94	296.56	357.40	326.98	3592.97	8630.73	6111.85	8.7
No.(djeep,MAHIN)	48	48	48	48	48	48	48	48	48	48	4
AVG(djeep,MAHIN)	14.49	26.42	20.45	21.17	299.10	359.93	329.51	4398.86	9621.51	7010.18	8.4
No.(djeep,OTHERS)	15	15	15	15	15	15	15	15	15	15	1
AVG(djeep,OTHERS)	11.33	22.67	17.00	16.33	292.00	354.19	323.09	3406.67	8205.74	5806.20	9.6
[illegible] (p/JEEP)											
No.(pjeep,ALL)	103	103	103	103	103	103	103	103	103	103	10
AVG(pjeep,ALL)	6.60	12.96	9.77	10.59	241.52	290.11	265.82	1757.82	4010.79	2884.30	13.0
No.(pjeep,B)	17	17	17	17	17	17	17	17	17	17	1
AVG(pjeep,B)	10.63	18.46	14.54	14.82	264.09	302.97	283.53	3155.65	6338.74	4747.19	11.8
No.(pjeep,C)	34	34	34	34	34	34	34	34	34	34	3
AVG(pjeep,C)	7.29	14.71	10.99	10.97	272.68	310.13	291.40	2114.14	4732.48	3423.31	12.9
No.(pjeep,D)	52	52	52	52	52	52	52	52	52	52	5
AVG(pjeep,D)	4.83	10.01	7.42	8.95	213.77	272.81	243.29	1067.86	2777.86	1922.86	13.4
No.(pjeep,GYPSY)	66	66	66	66	66	66	66	66	66	66	6
AVG(pjeep,GYPSY)	6.84	13.61	10.22	10.96	267.42	306.62	287.02	1890.06	4278.48	3084.27	11.0
No.(pjeep,MAHIN)	32	32	32	32	32	32	32	32	32	32	3
AVG(pjeep,MAHIN)	3.52	7.87	5.68	7.05	189.09	254.99	222.04	680.51	2039.84	1360.17	17.4
No.(pjeep,OTHERS)	5	5	5	5	5	5	5	5	5	5	5
AVG(pjeep,OTHERS)	23.22	36.83	30.00	28.30	235.22	296.87	266.04	6906.95	13091.33	9999.14	10.2

Note : djeep = Jeeps uing diesel (HSD)
pjeep = Jeeps using petrol (MS)

Annexure III.22 contd.

QNAN(d/jeep)		OTHERS	MAHIN	ALL
Age(L)	0	0	1	1
Age(L)	1	3	13	16
Age(L)	2	8	11	19
Age(L)	3	4	17	21
Age(L)	5	0	6	6
Age(L)	7	0	0	0
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		15	48	63

QNAN(d/jeep)		ALL
dist(L)	0	1
dist(L)	50	3
dist(L)	100	49
dist(L)	200	10
dist(L)	300	0
dist(L)	400	0
		63

QNAN(d/jeep)		OTHERS	MAHIN	ALL
milage	5	0	0	0
milage	6	0	0	0
milage	7	0	0	0
milage	8	13	45	58
milage	9	0	0	0
milage	10	0	1	1
milage	11	0	0	0
milage	12	0	0	0
milage	13	0	0	0
milage	14	0	0	0
milage	15	0	0	0
milage	16	0	0	0
milage	>17	2	2	4
		15	48	63

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QNAN(d/jeep)		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	14
Month/max	jun	47
Month/max	july	2
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		63

QNAN(d/jeep)		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	16
Month/min	july	47
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		63

QNAN(d/jeep)
Note: No information on occupancy.

QNAN(d/jeep)	ALL
Cheap	55
More rel	0
Less Cro	0
Faster	0
Any 2	0
Any 3	0
All	0

QNAN(p/jeep)		OTHERS	MAHIN	GYPSY	ALL
Age(L)	0	1	9	7	17
Age(L)	1	1	11	32	44
Age(L)	2	2	6	19	27
Age(L)	3	1	5	6	12
Age(L)	5	0	1	2	3
Age(L)	7	0	0	0	0
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		5	32	66	103

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Annexure III.22 contd.

QNAN(p/jeep)		ALL
dist(L)	0	5
dist(L)	50	60
dist(L)	100	35
dist(L)	200	3
dist(L)	300	0
		103

QNAN(p/jeep)		OTHERS	MAHIN	GYPSY	ALL
milage	7	2	0	0	2
milage	8	1	0	0	1
milage	9	0	0	0	0
milage	10	0	7	58	65
milage	11	0	0	0	0
milage	12	0	0	0	0
milage	13	0	0	0	0
milage	14	0	0	0	0
milage	15	1	1	1	3
milage	16	0	1	0	1
milage	>17	1	23	7	31
		5	32	66	103

QNAN(p/jeep)		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	18
Month/max	jun	58
Month/max	july	22
Month/max	aug	1
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		99

QNAN(p/je	ALL
Cheap	43
More rel	0
Less Cro	0
Faster	0
Any 2	0
Any 3	0
All	0

QNAN(p/jeep)		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	36
Month/min	july	63
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		99

Annexure III.23 : Nainital -- Buses (Passenger Transport)

	Fuel use per day(lit)-----------				Number of days of use per year------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NB(ALL)	124	124	124	124	124	124	124	124	124	124	124
AVB(ALL)	47.38	72.26	59.82	62.70	302.53	364.51	333.52	14370.24	26349.66	20359.95	4.00
NB(B)	29	29	29	29	29	29	29	29	29	29	29
AVB(B)	49.14	73.62	61.38	59.66	297.17	362.90	330.04	14771.31	26766.67	20768.99	4.00
NB(C)	73	73	73	73	73	73	73	73	73	73	73
AVB(C)	45.89	70.89	58.39	64.73	304.17	365.00	334.58	13958.33	25875.00	19916.67	4.00
NB(D)	22	22	22	22	22	22	22	22	22	22	22
AVB(D)	50.00	75.00	62.50	60.00	304.17	365.00	334.58	15208.33	27375.00	21291.67	4.00
NB(TATA)	124	124	124	124	124	124	124	124	124	124	124
AVB(TATA)	47.38	72.26	59.82	62.70	302.53	364.51	333.52	14370.24	26349.66	20359.95	4.00

*All buses in the sample mfgd by Tata

QNANBUS		ALL
Age(L)	0	11
Age(L)	1	17
Age(L)	2	45
Age(L)	3	48
Age(L)	5	3
Age(L)	7	0
Age(L)	10	0
Age(L)	15	0
Age(L)	20	0
		124

QNANBUS		ALL
dist(L)	0	0
dist(L)	50	0
dist(L)	100	13
dist(L)	200	111
dist(L)	300	0
dist(L)	400	0
		124

QNANBUS		ALL
milage	4	124

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Annexure III.23 contd.

QNANBUS		ALL
# pass	20	0
# pass	30	0
# pass	40	20
# pass	45	5
# pass	50	0
# pass	55	71
		96

QNANBUS		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	13
Month/max	jun	111
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		124

QNANBUS		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	13
Month/min	july	111
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		124

Annexure III.24 : Other UP -- Two Wheelers (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons. (km/litre)
	low	high	ave	given	low	high	ave	low	high	ave	
NO.(2W,ALL)	1673	1673	1673	1673	1673	1673	1673	1673	1673	1673	1673
AVG(2W,ALL)	0.47	1.82	1.09	1.30	243.07	323.90	283.48	114.33	589.40	351.87	36.92
NO.(2W,B)	622	622	622	622	622	622	622	622	622	622	622
AVG(2W,B)	0.38	1.38	0.93	1.10	242.38	323.55	282.96	91.48	511.47	301.48	40.53
NO.(2W,C)	666	666	666	666	666	666	666	666	666	666	666
AVG(2W,C)	0.48	1.86	1.11	1.34	243.15	324.26	283.70	115.71	604.68	360.19	35.94
NO.(2W,D)	251	251	251	251	251	251	251	251	251	251	251
avg(2W,D)	0.55	2.05	1.24	1.50	243.94	323.68	283.81	133.82	663.35	398.59	33.06
NO.(2W,E)	134	134	134	134	134	134	134	134	134	134	134
avg(2W,E)	0.73	2.27	1.45	1.68	244.24	324.14	284.19	177.08	736.74	456.91	32.23
No.(2w,all mb)	544	544	544	544	544	544	544	544	544	544	544
avg(2w,all mb)	0.67	2.22	1.39	1.68	243.45	324.15	283.80	162.80	718.30	440.55	33.13
No.(2w,all sc)	985	985	985	985	985	985	985	985	985	985	985
avg(2w,all sc)	0.40	1.70	1.00	1.18	242.72	323.73	283.22	98.28	551.33	324.81	37.16
No.(2w,all md)	144	144	144	144	144	144	144	144	144	144	144
avg(2w,all md)	0.17	1.12	0.60	0.72	244.07	324.09	284.08	41.02	362.89	201.95	49.59
NO.(2W,ENFIELD)	24	24	24	24	24	24	24	24	24	24	24
AVG(2W,ENFIELD)	0.37	1.70	0.97	1.25	240.50	322.56	281.53	88.71	550.38	319.55	34.54
NO.(2W,H.HONDA)	102	102	102	102	102	102	102	102	102	102	102
AVG(2W,H.HONDA)	0.22	1.31	0.71	1.10	243.86	324.20	284.03	54.23	424.74	239.48	44.00
NO.(2W,RAJDOOT)	214	214	214	214	214	214	214	214	214	214	214
AVG(2W,RAJDOOT)	0.67	2.06	1.32	1.53	243.15	324.23	283.69	162.54	666.40	414.47	35.57
NO.(2W,YAMAHA)	30	30	30	30	30	30	30	30	30	30	30
AVG(2W,YAMAHA)	0.19	1.52	0.78	1.08	243.17	324.34	283.75	45.06	493.02	269.04	35.60
NO(BULLET)	102	102	102	102	102	102	102	102	102	102	102
AVG(BULLET)	1.41	3.62	2.46	2.79	243.93	324.25	284.09	344.11	1172.22	758.17	22.16
NO(YEZDI)	66	66	66	66	66	66	66	66	66	66	66
AVG(YEZDI)	0.56	2.48	1.43	1.73	244.26	324.14	284.20	135.80	803.35	469.58	24.10
NO.(2W,oth mb)	6	6	6	6	6	6	6	6	6	6	6
AVG(2W,oth mb)	0.48	2.18	1.26	1.92	243.11	324.30	283.70	117.83	706.13	411.98	29.33

Annexure III.24 contd.

NO(NARMADA)	16	16	16	16	16	16	16	16	16	16	16
AVG(NARMADA)	0.41	1.85	1.07	1.51	243.33	324.44	283.89	100.61	600.91	350.76	32.34
NO(K.HONDA)	22	22	22	22	22	22	22	22	22	22	22
AVG(K.HONDA)	0.18	1.39	0.72	1.04	243.33	324.44	283.89	42.64	450.52	246.58	37.93
NO.(2W,BAJAJ)	316	316	316	316	316	316	316	316	316	316	316
AVG(2W,BAJAJ)	0.46	1.75	1.05	1.19	242.45	323.48	282.97	111.91	565.44	338.68	37.70
NO.(2W,CHETAK)	124	124	124	124	124	124	124	124	124	124	124
AVG(2W,CHETAK)	0.26	1.39	0.77	1.00	242.83	323.87	283.35	62.32	448.96	255.64	41.16
NO.(2W,PRIYA)	216	216	216	216	216	216	216	216	216	216	216
AVG(2W,PRIYA)	0.25	1.51	0.82	1.01	242.28	323.43	282.86	59.91	488.26	274.08	36.25
NO.(2W,VIJAY)	47	47	47	47	47	47	47	47	47	47	47
AVG(2W,VIJAY)	0.37	2.17	1.18	1.66	243.32	324.42	283.87	88.87	705.53	397.20	25.60
NO.(2W,LAMBY)	34	34	34	34	34	34	34	34	34	34	34
AVG(2W,LAMBY)	0.97	2.99	1.92	2.01	243.18	324.34	283.76	237.07	969.94	603.51	26.51
NO.(2W,LML)	210	210	210	210	210	210	210	210	210	210	210
AVG(2W,LML)	0.51	1.73	1.07	1.20	243.17	323.95	283.56	123.78	559.91	341.84	39.52

GUPP2W	Age(L) 0	Age(L) 1	Age(L) 2	Age(L) 3	Age(L) 5	Age(L) 7	Age(L) 10	Age(L) 15	Age(L) 20	Total
OTHERS	1	0	1	1	1	2	0	0	0	6
MOPED	10	27	26	54	18	6	2	0	0	143
YAMAHA	4	4	10	8	3	1	0	0	0	30
VIJAY	1	0	1	0	3	41	1	0	0	47
RAJDOOT	7	9	50	60	47	31	9	0	0	213
LML	23	46	92	36	7	4	2	0	0	210
LAMBY	0	0	4	5	11	7	4	3	0	34
H.HONDA	6	48	18	21	6	3	0	0	0	102
ENFIELD	1	2	9	5	5	1	1	0	0	24
PRIYA	32	40	65	51	18	6	1	0	0	213
CHETAK	15	21	45	32	10	0	1	0	0	124
BAJAJ	21	53	99	65	50	25	2	1	0	316
narmada	0	1	3	9	3	0	0	0	0	16
bullet	0	2	10	26	52	10	1	0	0	101
yezdi	0	0	2	12	21	29	1	0	0	65
t.honda	0	1	14	4	2	1	0	0	0	22
ALL	121	254	449	389	257	167	25	4	0	1666

[illegible] III.24 contd.

[illegible]		ALL
[illegible](L)	0	1304
[illegible](L)	50	347
[illegible](L)	100	19
[illegible](L)	200	1
[illegible](L)	300	0
[illegible](L)	400	0
		1671

[illegible]	milage	milage	milage	milage	milage	milage	milage	milage	milage	milage	milage	
	20	25	30	35	40	45	50	55	60	70	80	Total
OTHERS	1	2	1	0	2	0	0	0	0	0	0	6
[illegible]	0	0	0	6	41	19	10	32	25	10	1	144
[illegible]	0	7	2	8	9	1	1	2	0	0	0	30
[illegible]	3	32	10	2	0	0	0	0	0	0	0	47
[illegible]	1	6	61	41	98	7	0	0	0	0	0	214
[illegible]	0	1	31	30	74	51	22	1	0	0	0	210
[illegible]	5	12	13	3	1	0	0	0	0	0	0	34
[illegible]	0	0	0	41	22	8	6	11	6	5	3	102
[illegible]	0	0	5	15	3	1	0	0	0	0	0	24
[illegible]	0	3	8	120	78	7	0	0	0	0	0	216
[illegible]	0	0	6	19	55	17	26	1	0	0	0	124
[illegible]	2	3	15	116	142	26	10	1	0	1	0	316
[illegible]	0	0	9	4	3	0	0	0	0	0	0	16
[illegible]	0	0	0	16	1	3	1	1	0	0	0	22
[illegible]	45	56	1	0	0	0	0	0	0	0	0	102
[illegible]	1	58	6	1	0	0	0	0	0	0	0	66
ALL	58	180	168	422	529	140	76	49	31	16	4	1673

[illegible]		ALL
# pass	1	21
# pass	2	56
# pass	3	0
# pass	4	0
# pass	5	0
# pass	6	0
# pass	7	0
# pass	8	1
# pass	9	0
# pass	10	0
		78

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Annexure III.24 contd.

QUPP2W		ALL
Month/max	jan	6
Month/max	feb	0
Month/max	mar	7
Month/max	apr	0
Month/max	may	0
Month/max	jun	2
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		15

QUPP2W		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	1
Month/min	apr	0
Month/min	may	0
Month/min	jun	1
Month/min	july	13
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		15

QUPP2W	ALL
Cheap	174
More rel	474
Less Cro	425
Faster	215
Any 2	222
Any 3	63
All	152

Annexure III.25 : Other UP -- Three Wheelers (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(d3W,ALL)	21	21	21	21	21	21	21	21	21	21.	21
AVG(d3W,ALL)	5.69	10.67	8.18	6.60	242.51	323.34	282.92	1380.40	3450.25	2415.32	20.10
NO.(d3W,B)	10	10	10	10	10	10	10	10	10	10	10
AVG(d3W,B)	6.50	11.50	9.00	7.35	242.46	323.29	282.88	1575.87	3717.59	2646.73	20.00
NO.(d3W,C)	6	6	6	6	6	6	6	6	6	6	6
AVG(d3W,C)	4.92	9.85	7.39	6.00	242.37	323.16	282.76	1193.48	3182.61	2188.04	20.33
NO.(d3W,D)	3	3	3	3	3	3	3	3	3	3	3
AVG(d3W,D)	23.62	26.85	25.23	24.55	185.09	240.14	212.61	896.93	2233.58	1565.25	34.52
NO.(d3W,E)	2	2	2	2	2	2	2	2	2	2	2
AVG(d3W,E)	5.00	10.00	7.50	5.50	242.85	323.80	283.33	1214.25	3238.01	2226.13	20.00
NO.(d3W,vikram)	19	19	19	19	19	19	19	19	19	19	19
AVG(d3W,VIKRAM)	5.77	10.74	8.25	6.61	242.52	323.36	282.94	1398.15	3473.26	2435.71	20.11
NO.(d3W,OTHERS)	2	2	2	2	2	2	2	2	2	2	2
AVG(d3W,OTHERS)	5.00	10.00	7.50	6.50	242.37	323.16	282.76	1211.84	3231.57	2221.70	20.00
(p) OUPP3W											
NO.(p3w,ALL)	423	423	423	423	423	423	423	423	423	423	423
AVG(p3W,ALL)	5.00	9.54	7.27	7.27	242.61	323.64	283.12	1215.63	3087.99	2151.81	21.31
NO.(p3W,B)	185	185	185	185	185	185	185	185	185	185	185
AVG(pd3W,B)	4.38	8.75	6.56	6.79	241.99	323.02	282.51	1062.16	2829.22	1945.69	22.65
NO.(p3W,C)	155	155	155	155	155	155	155	155	155	155	155
AVG(p3W,C)	5.09	9.61	7.35	7.32	242.98	323.98	283.48	1235.88	3113.83	2174.86	20.77
NO.(p3W,D)	51	51	51	51	51	51	51	51	51	51	51
AVG(pd3W,D)	6.56	11.91	9.23	8.66	243.24	324.32	283.78	1595.91	3863.45	2729.68	18.57
NO.(E)	32	32	32	32	32	32	32	32	32	32	32
AVG(E)	5.75	9.93	7.84	7.63	243.33	324.44	283.89	1398.71	3222.96	2310.84	20.55
NO.(p3W,bajaj)	293	293	293	293	293	293	293	293	293	293	293
AVG(p3W,bajaj)	5.16	9.64	7.40	7.40	242.77	323.79	283.28	1255.00	3124.08	2189.54	21.26
NO.(p3W,lambr)	110	110	110	110	110	110	110	110	110	110	110
AVG(p3W,lambr)	4.74	9.48	7.11	7.11	242.16	323.24	282.70	1149.63	3067.51	2108.57	21.14
NO.(p3W,vespa)	20	20	20	20	20	20	20	20	20	20	20
AVG(p3W,vespa)	4.13	8.26	6.19	6.35	242.71	323.61	283.16	1001.95	2671.86	1836.90	23.05

Note : d3W = 3-wheelers using diesel (HSD)
3-wheelers using petrol (MS)

Annexure III.25 contd.

QUPP3W(d)		OTHERS	VIKRAM	ALL
Age(L)	0	0	0	0
Age(L)	1	0	1	1
Age(L)	2	1	4	5
Age(L)	3	1	7	8
Age(L)	5	0	6	6
Age(L)	7	0	1	1
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		2	19	21

QUPP3W(d)		ALL
dist(L)	0	0
dist(L)	50	0
dist(L)	100	18
dist(L)	200	3
dist(L)	300	0
		21

QUPP3W(d)		OTHERS	VIKRAM	ALL
milage	16	0	0	0
milage	17	0	0	0
milage	18	0	0	0
milage	19	0	0	0
milage	20	2	18	20
milage	22	0	1	1
milage	24	0	0	0
milage	25	0	0	0
milage	26	0	0	0
milage	28	0	0	0
milage	>28	0	0	0
		2	19	21

Note: For d3W -- No information on occupancy,
month of max & min use,
and reasons to shift to public
modes of transport.

Annexure III.25 contd.

QUPP3W(p)		VESPA	LAMBERETTBAJAJ		ALL
Age(L)	0	0	0	0	0
Age(L)	1	1	2	4	7
Age(L)	2	6	11	13	30
Age(L)	3	7	21	33	61
Age(L)	5	5	21	66	92
Age(L)	7	1	10	122	133
Age(L)	10	0	13	35	48
Age(L)	15	0	29	4	33
Age(L)	20	0	3	0	3
		20	110	277	407

QUPP3W(p)		ALL
dist(L)	0	1
dist(L)	50	47
dist(L)	100	309
dist(L)	200	48
dist(L)	300	0
		405

QUPP3W(p)		VESPA	LAMBERETTBAJAJ		ALL
milage	16	0	0	0	0
milage	17	0	0	0	0
milage	18	1	18	0	19
milage	19	0	5	0	5
milage	20	2	37	30	69
milage	22	8	24	36	68
milage	24	0	4	0	4
milage	25	7	21	94	122
milage	26	2	1	1	4
milage	28	0	0	0	0
milage	>28	0	0	0	0
		20	110	161	291

QUPP3W(p)		ALL
# pass	3	0
# pass	4	2
# pass	5	10
# pass	6	1
# pass	7	18
# pass	>7	0
		31

QUPP3W(p)	ALL
Cheap	1
More rel	35
Less Cro	37
Faster	21
Any 2	38
Any 3	5
All	0

Note: For p3W -- No information on month of max & min use.

Annexure III.26 : Other UP -- Cars (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(CAR,ALL)	381	381	381	381	381	381	381	381	381	381	381
AVG(CAR,ALL)	1.95	5.98	3.84	4.04	240.12	320.93	280.51	414.34	1308.09	1195.38	13.02
NO.(CAR,B)	194	194	194	194	194	194	194	194	194	194	194
AVG(CAR,B)	1.08	4.71	2.74	3.14	237.65	318.26	277.96	258.35	1498.94	878.64	13.61
NO.(CAR,C)	128	128	128	128	128	128	128	128	128	128	128
AVG(CAR,C)	2.37	6.60	4.37	4.68	241.34	321.58	281.46	574.40	2125.63	1350.01	12.86
NO.(CAR,D)	40	40	40	40	40	40	40	40	40	40	40
AVG(CAR,D)	3.36	8.07	5.60	5.44	237.24	318.45	277.84	816.53	2597.23	1706.88	12.21
NO.(CAR,E)	19	19	19	19	19	19	19	19	19	19	19
AVG(CAR,E)	5.08	10.43	7.74	7.95	243.33	324.44	283.89	1237.12	3384.37	2310.75	9.84
NO.(CAR,AMBY)	58	58	58	58	58	58	58	58	58	58	58
AVG(CAR,AMBY)	1.34	6.39	3.64	3.51	232.26	311.89	272.08	313.99	1999.14	1156.57	9.36
NO.(CAR,FIAT)	75	75	75	75	75	75	75	75	75	75	75
AVG(CAR,FIAT)	2.51	7.34	4.78	5.14	241.97	322.72	282.35	610.35	2372.69	1491.52	10.55
NO.(CAR,MARUTI)	248	248	248	248	248	248	248	248	248	248	248
AVG(CAR,MARUTI)	1.93	5.48	3.60	3.99	239.88	320.62	280.25	467.02	1762.76	1114.89	14.63

QUPPCAR		MARUTI	FIAT	AMBY	ALL
Age(L)	0	27	2	1	30
Age(L)	1	61	8	6	75
Age(L)	2	107	12	16	135
Age(L)	3	43	33	9	85
Age(L)	5	5	14	13	32
Age(L)	7	5	3	7	15
Age(L)	10	0	1	6	7
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		248	73	58	379

QUPPCAR		ALL
dist(L)	0	259
dist(L)	50	104
dist(L)	100	17
dist(L)	200	0
dist(L)	300	1
dist(L)	400	0
		381

Annexure III.26 contd.

QUPPCAR		MARUTI	FIAT	AMBY	ALL
milage	4	0	0	1	1
milage	5	0	0	1	1
milage	6	0	1	0	1
milage	8	0	7	10	17
milage	9	3	7	16	26
milage	10	27	26	20	73
milage	12	21	32	10	63
milage	14	11	0	0	11
milage	16	155	2	0	157
milage	18	30	0	0	30
milage	>18	1	0	0	1
		248	75	58	381

QUPPCAR		ALL	QUPPCAR	ALL
# pass	1	0	Cheap	43
# pass	2	0	More rel	153
# pass	3	3	Less Cro	174
# pass	4	12	Faster	111
# pass	5	0	Any 2	103
# pass	6	0	Any 3	36
# pass	>6	0	All	38
		15		

QUPPCAR				
jan	Month/max	0	Month/min	0
feb	Month/max	0	Month/min	0
mar	Month/max	2	Month/min	0
apr	Month/max	0	Month/min	0
may	Month/max	0	Month/min	0
jun	Month/max	0	Month/min	0
july	Month/max	0	Month/min	1
aug	Month/max	0	Month/min	0
sep	Month/max	0	Month/min	0
oct	Month/max	0	Month/min	0
nov	Month/max	0	Month/min	0
dec	Month/max	0	Month/min	0
		2		1

Annexure III.27 : Other UP -- Taxis (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(dTAXI,ALL)	64	64	64	64	64	64	64	64	64	64	64
AVG(dTAXI,ALL)	25.87	35.81	30.84	29.86	244.28	324.13	284.21	6322.69	11606.72	8964.71	9.98
NO.(dTAXI,B)	13	13	13	13	13	13	13	13	13	13	13
AVG(dTAXI,B)	23.88	33.43	28.64	28.23	243.33	324.44	283.89	5811.07	10845.07	8328.07	10.08
NO.(dTAXI,C)	13	13	13	13	13	13	13	13	13	13	13
AVG(dTAXI,C)	26.15	36.15	31.15	30.31	243.33	324.44	283.89	6364.10	11729.91	9047.01	10.00
NO.(dTAXI,D)	27	27	27	27	27	27	27	27	27	27	27
AVG(dTAXI,D)	26.11	36.20	31.16	30.22	245.59	323.69	284.64	6421.30	11716.05	9068.67	9.93
NO.(dTAXI,E)	11	11	11	11	11	11	11	11	11	11	11
AVG(dTAXI,E)	27.27	37.27	32.27	30.36	243.33	324.44	283.89	6636.36	12092.93	9364.65	10.00
NO.(dTAXI,MAHIN)	62	62	62	62	62	62	62	62	62	62	62
AVG(dTAXI,MAHIN)	26.21	36.25	31.23	30.31	244.31	324.12	284.22	6407.12	11748.03	9077.58	9.97
NO.(dTAXI,OTHERS)	2	2	2	2	2	2	2	2	2	2	2
AVG(dTAXI,OTHERS)	15.23	22.27	18.64	16.00	243.33	324.44	283.89	3705.30	7226.26	5465.78	10.50
NO.(pTAXI,ALL)	12	12	12	12	12	12	12	12	12	12	12
AVG(pTAXI,ALL)	11.35	18.96	15.11	17.00	243.33	324.44	283.89	2762.26	6150.56	4456.41	10.50
NO.(pTAXI,B)	4	4	4	4	4	4	4	4	4	4	4
AVG(pTAXI,B)	8.53	15.86	12.10	13.50	243.33	324.44	283.89	2075.71	5145.23	3610.47	11.00
NO.(pTAXI,C)	4	4	4	4	4	4	4	4	4	4	4
AVG(pTAXI,C)	11.64	18.86	15.21	18.75	243.33	324.44	283.89	2831.43	6119.12	4475.28	11.25
NO.(pTAXI,D)	3	3	3	3	3	3	3	3	3	3	3
AVG(pTAXI,D)	16.85	26.20	21.53	22.00	243.33	324.44	283.89	4100.62	8501.65	6301.13	9.00
NO.(pTAXI,E)	1	1	1	1	1	1	1	1	1	1	1
AVG(pTAXI,E)	5.00	10.00	7.50	9.00	243.33	324.44	283.89	1216.67	3244.44	2230.56	10.00
NO.(pTAXI,AMBY)	3	3	3	3	3	3	3	3	3	3	3
AVG(pTAXI,AMBY)	19.44	31.02	25.23	26.00	243.33	324.44	283.89	4731.48	10063.79	7397.63	8.67
NO.(pTAXI,FIAT)	3	3	3	3	3	3	3	3	3	3	3
AVG(pTAXI,FIAT)	4.09	9.39	6.66	9.00	243.33	324.44	283.89	994.43	3045.08	2019.76	9.33

Annexure III.27 contd.

```
NO.(pTAXI,MAHIN)       3       3       3       3       3       3       3        3        3        3       3
AVG(pTAXI,MAHIN)   20.00   30.00   25.00   28.67  243.33  324.44  283.89  4866.67  9733.33  7300.00   10.00

NO.(pTAXI,MARUTI)      3       3       3       3       3       3       3        3        3        3       3
AVG(pTAXI,MARUTI)   1.88    5.42    3.55    4.33  243.33  324.44  283.89   456.45  1760.06  1108.25   14.00
```

Note : dTAXI = Taxis using diesel (HSD)
       pTAXI = Taxi using petrol (MS)

```
QUPPTAXI(d)          OTHERS   MAHIN       ALL
Age(L)             0       0       0       0
Age(L)             1       0       0       0
Age(L)             2       0       0       0
Age(L)             3       0       2       2
Age(L)             5       1      16      17
Age(L)             7       1      43      44
Age(L)            10       0       1       1
Age(L)            15       0       0       0
Age(L)            20       0       0       0
                           2      62      64


QUPPTAXI(d)                 ALL
dist(L)            0          1
dist(L)           50          0
dist(L)          100          2
dist(L)          200         20
dist(L)          300         41
dist(L)          400          0
                             64

QUPPTAXI(d)          OTHERS   MAHIN       ALL
milage             7       0       0       0
milage             8       0       1       1
milage             9       0       0       0
milage            10       1      61      62
milage            11       1       0       1
milage            12       0       0       0
milage            14       0       0       0
milage            16       0       0       0
milage            18       0       0       0
milage           >18       0       0       0
                         . 2      62      64


=====================================================================
```

Annexure III.27 contd.

```
QUPPTAXI(d)                 ALL
Month/max       jan           0
Month/max       feb           0
Month/max       mar           1
Month/max       apr           0
Month/max       may           0
Month/max       jun           0
Month/max       july          0
Month/max       aug           0
Month/max       sep           0
Month/max       oct           0
Month/max       nov           0
Month/max       dec           0
                              1

QUPPTAXI(d)                 ALL
Month/min       jan           0
Month/min       feb           0
Month/min       mar           0
Month/min       apr           0
Month/min       may           0
Month/min       jun           0
Month/min       july          1
Month/min       aug           0
Month/min       sep           0
Month/min       oct           0
Month/min       nov           0
Month/min       dec           0
                              1

QUPPTAXI(d)         ALL
Cheap                 1
More rel              7
Less Cro              9
Faster                8
Any 2                 4
Any 3                 4
All                   1
==============================================================
```

Annexure III.27 contd.

QUPPTAXI(p)		MARUTI	MAHINDRA	FIAT	AMBY	ALL
Age(L)	0	0	0	0	0	0
Age(L)	1	0	0	0	0	0
Age(L)	2	1	0	2	0	3
Age(L)	3	1	0	0	0	1
Age(L)	5	0	3	1	3	7
Age(L)	7	1	0	0	0	1
Age(L)	10	0	0	0	0	0
Age(L)	15	0	0	0	0	0
Age(L)	20	0	0	0	0	0
		3	3	3	3	12

QUPPTAXI(p)		ALL
dist(L)	0	3
dist(L)	50	3
dist(L)	100	1
dist(L)	200	5
dist(L)	300	0
dist(L)	400	0
		12

QUPPTAXI(p)		MARUTI	MAHINDRA	FIAT	AMBY	ALL
milage	4	0	0	0	0	0
milage	5	0	0	0	0	0
milage	6	0	0	0	0	0
milage	7	0	0	0	0	0
milage	8	0	0	1	1	2
milage	9	0	0	1	2	3
milage	10	1	3	0	0	4
milage	11	0	0	1	0	1
milage	12	0	0	0	0	0
milage	14	0	0	0	0	0
milage	16	1	0	0	0	1
milage	18	1	0	0	0	1
milage	>18	0	0	0	0	0
		3	3	3	3	12

QUPPTAXI(p)	ALL
Cheap	2
More rel	3
Less Cro	6
Faster	4
Any 2	4
Any 3	1
All	1

Note: dTAXI -- No information on occupancy.
pTAXI -- No information on occupancy,
and months of max & min use.

Annexure III.28 : Other UP -- Jeeps (Passenger Transport)

	Fuel use per day(lit)-----------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(dJEEP,ALL)	384	384	384	384	384	384	384	384	384	384	384
AVG(dJEEP,ALL)	15.89	25.91	20.88	21.37	244.28	324.13	284.21	3883.62	8395.70	6139.66	9.70
NO.(dJEEP,B)	68	68	68	68	68	68	68	68	68	68	68
AVG(dJEEP,B)	15.25	25.37	20.30	20.94	243.33	324.44	283.89	3711.85	8230.46	5971.15	9.73
NO.(dJEEP,C)	120	120	120	120	120	120	120	120	120	120	120
AVG(dJEEP,C)	17.75	28.08	22.92	22.76	243.33	324.44	283.89	4319.51	9111.86	6715.69	9.92
NO.(dJEEP,D)	122	122	122	122	122	122	122	122	122	122	122
AVG(dJEEP,D)	15.93	26.03	20.94	21.70	246.33	323.45	284.89	3929.29	8414.94	6172.11	9.42
NO.(dJEEP,E)	74	74	74	74	74	74	74	74	74	74	74
AVG(dJEEP,E)	13.39	22.67	17.99	18.96	243.33	324.44	283.89	3259.31	7354.48	5306.89	9.79
NO.(dJEEP,MAHIN)	380	380	380	380	380	380	380	380	380	380	380
AVG(dJEEP,MAHIN)	15.88	25.89	20.86	21.37	243.97	324.23	284.10	3873.85	8394.91	6134.38	9.70
NO.(dJEEP,OTHERS)	4	4	4	4	4	4	4	4	4	4	4
AVG(dJEEP,OTHERS)	17.27	27.05	22.16	21.00	273.75	314.31	294.03	4811.36	8470.58	6640.97	10.25
NO.(pJEEP,ALL)	40	40	40	40	40	40	40	40	40	40	40
AVG(pJEEP,ALL)	5.23	11.52	8.26	7.48	243.33	324.44	283.89	1272.96	3736.18	2504.57	10.83
NO.(pJEEP,B)	7	7	7	7	7	7	7	7	7	7	7
AVG(pJEEP,B)	4.07	10.32	7.06	7.00	243.33	324.44	283.89	990.71	3349.78	2170.25	10.14
NO.(pJEEP,C)	16	16	16	16	16	16	16	16	16	16	16
AVG(pJEEP,C)	3.92	9.46	6.55	5.85	243.33	324.44	283.89	955.04	3068.17	2011.60	11.19
NO.(pJEEP,D)	2	2	2	2	2	2	2	2	2	2	2
AVG(pJEEP,D)	9.09	18.18	13.64	10.00	243.33	324.44	283.89	2212.12	5898.99	4055.56	11.00
NO.(dJEEP,E)	15	15	15	15	15	15	15	15	15	15	15
AVG(dJEEP,E)	6.65	13.38	9.92	9.10	243.33	324.44	283.89	1618.58	4340.67	2979.62	10.73
NO.(pJEEP,GYPSY)	8	8	8	8	8	8	8	8	8	8	8
AVG(pJEEP,GYPSY)	4.81	10.71	7.69	6.68	243.33	324.44	283.89	1169.49	3475.64	2322.56	12.00
NO.(pJEEP,MAHIN)	30	30	30	30	30	30	30	30	30	30	30
AVG(pJEEP,MAHIN)	5.06	11.22	8.01	7.52	243.33	324.44	283.89	1230.57	3641.81	2436.19	10.53
NO.(pJEEP,OTHERS)	2	2	2	2	2	2	2	2	2	2	2
AVG(pJEEP,OTHERS)	9.55	19.09	14.32	10.00	243.33	324.44	283.89	2322.73	6193.94	4258.33	10.50

Note : dJEEP = Jeep using diesel (HSD)
dJEEP = Jeep using petrol (MS)

Annexure III.28 contd.

QUPPJEEP(d)		OTHERS	MAHINDRA	ALL
Age(L)	0	0	0	0
Age(L)	1	0	1	1
Age(L)	2	0	19	19
Age(L)	3	0	47	47
Age(L)	5	1	122	123
Age(L)	7	2	91	93
Age(L)	10	1	89	90
Age(L)	15	0	10	10
Age(L)	20	0	0	0
		4	379	383

QUPPJEEP(d)		ALL
dist(L)	0	32
dist(L)	50	12
dist(L)	100	136
dist(L)	200	170
dist(L)	300	34
dist(L)	400	0
		384

QUPPJEEP(d)		OTHERS	MAHIN	ALL
milage	4	0	1	1
milage	5	0	3	3
milage	6	0	9	9
milage	7	0	5	5
milage	8	0	37	37
milage	9	0	18	18
milage	10	3	271	274
milage	11	1	21	22
milage	12	0	15	15
milage	14	0	0	0
milage	16	0	0	0
milage	18	0	0	0
milage	>18	0	0	0
		4	380	384

Annexure III.28 contd.

```
QUPPJEEP(d)              ALL
# pass           1         1
# pass           2         0
# pass           3         0
# pass           4         0
# pass           5         0
# pass           6         0
# pass           7         1
# pass           8         2
# pass           9         0
# pass          10         0
                           4


QUPPJEEP(d)              ALL
Month/max     jan          0
Month/max     feb          0
Month/max     mar          2
Month/max     apr          0
Month/max     may          0
Month/max     jun          1
Month/max     july         0
Month/max     aug          0
Month/max     sep          0
Month/max     oct          0
Month/max     nov          0
Month/max     dec          0
                           3

QUPPJEEP(d)              ALL
Month/min     jan          0      QUPPJEEP(    ALL
Month/min     feb          0      Cheap          3
Month/min     mar          0      More rel      24
Month/min     apr          0      Less Cro      32
Month/min     may          0      Faster        22
Month/min     jun          0      Any 2         30
Month/min     july         3      Any 3          5
Month/min     aug          0      All            1
Month/min     sep          0
Month/min     oct          0
Month/min     nov          0
Month/min     dec          0
                           3
==============================================================
```

Annexure III.28 contd.

QUPPJEEP(p)		OTHERS	MAHIN	GYPSY	ALL
Age(L)	0	0	1	1	2
Age(L)	1	0	1	0	1
Age(L)	2	0	5	2	7
Age(L)	3	2	11	3	16
Age(L)	5	0	8	2	10
Age(L)	7	0	3	0	3
Age(L)	10	0	1	0	1
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		2	30	8	40

QUPPJEEP(p)		ALL
dist(L)	0	20
dist(L)	50	5
dist(L)	100	12
dist(L)	200	3
dist(L)	300	0
dist(L)	400	0
		40

QUPPJEEP(p)		OTHERS	MAHIN	GYPSY	ALL
milage	4	0	0	0	0
milage	5	0	0	0	0
milage	6	0	0	0	0
milage	7	0	0	0	0
milage	8	0	1	0	1
milage	9	0	1	0	1
milage	10	1	13	2	16
milage	11	1	11	3	15
milage	12	0	4	1	5
milage	14	0	0	0	0
milage	16	0	0	2	2
milage	18	0	0	0	0
milage	>18	0	0	0	0
		2	30	8	40

QUPPJEEP(p)		ALL
# pass	1	0
# pass	2	0
# pass	3	0
# pass	4	0
# pass	5	0
# pass	6	0
# pass	7	0
# pass	8	3
# pass	9	0
# pass	10	0
		3

QUPPJEEP(	ALL
Cheap	2
More rel	7
Less Cro	8
Faster	3
Any 2	5
Any 3	2
All	1

Note: No information on month of max & min use

Annexure III.29 : Other UP -- Buses/Mini-Buses (Passenger Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(all,bus)	288	288	288	288	288	288	288	288	288	288	288
avg(all,bus)	63.43	107.30	85.36	89.99	246.29	323.46	284.87	15613.75	34708.56	25161.16	2.52
No.(B,bus)	47	47	47	47	47	47	47	47	47	47	47
avg.(B,bus)	60.09	104.62	82.36	85.32	243.33	324.44	283.89	14622.33	33943.25	24282.79	2.58
No.(C,bus)	83	83	83	83	83	83	83	83	83	83	83
avg.(C,bus)	63.93	108.89	86.41	90.00	243.33	324.44	283.89	15555.14	35328.08	25441.61	2.36
No.(D,bus)	119	119	119	119	119	119	119	119	119	119	119
avg.(D,bus)	63.49	107.09	85.29	90.86	250.49	322.06	286.27	15882.96	34494.43	25188.69	2.56
No.(E,bus)	39	39	39	39	39	39	39	39	39	39	39
avg.(E,bus)	66.21	107.77	86.99	92.95	243.33	324.44	283.89	16111.83	34965.77	25538.80	2.65
No.(Leyland)	49	49	49	49	49	49	49	49	49	49	49
avg(Leyland)	51.24	95.37	73.30	82.14	245.82	323.62	284.72	12579.12	30869.12	21724.12	2.31
No.(Tata)	239	239	239	239	239	239	239	239	239	239	239
avg(Tata)	65.93	109.74	87.84	91.60	246.39	323.43	284.91	16235.91	35495.73	25865.82	2.56
No.(mbus,all)	7	7	7	7	7	7	7	7	7	7	7
avg(mbus,all)	16.19	28.21	22.20	25.27	243.33	324.44	283.89	3939.68	9153.97	6546.83	8.57

Note : mbus = Mini-bus

QUPPBUS		TATA	dLEYLAND	dBUS	mBUS	ALL
Age(L)	0	0	0	0	0	0
Age(L)	1	1	3	4	0	4
Age(L)	2	7	2	9	0	9
Age(L)	3	23	9	32	2	34
Age(L)	5	42	8	50	2	52
Age(L)	7	122	14	136	2	138
Age(L)	10	35	11	46	1	47
Age(L)	15	7	1	8	0	8
Age(L)	20	0	0	0	0	0
		237	48	285	7	292

Annexure III.29 contd.

QUPPBUS		ALL
dist(L)	0	0
dist(L)	50	2
dist(L)	100	168
dist(L)	200	93
dist(L)	300	29
dist(L)	400	2
dist(L)	500	0
		294

QUPPBUS		dTATA	dLEYLAND	dBUS	mBUS	ALL
milage	2	100	24	124	0	124
milage	2.5	70	22	92	0	92
milage	3	30	1	31	0	31
milage	3.5	3	0	3	0	3
milage	4	22	1	23	0	23
milage	4.5	4	0	4	0	4
milage	5	10	1	11	0	11
milage	6	0	0	0	1	1
milage	7	0	0	0	0	0
milage	8	0	0	0	3	3
milage	10	0	0	0	3	3
milage	12	0	0	0	0	0
milage	>12	0	0	0	0	0
		239	49	288	7	295

QUPPBUS	Month/max	Month/min
jan	0	0
feb	0	0
mar	8	0
apr	0	1
may	0	0
jun	0	5
july	0	2
aug	0	0
sep	0	0
oct	0	0
nov	0	0
dec	0	0
	8	8

Note: No information on occupancy.

Annexure III.30 : Delhi/New Delhi--Trucks (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
SDELTRUK	All use HSD										
NO.(ALL)	80	80	80	80	80	80	80	80	80	80	80
AVG(ALL)	75.31	102.01	88.61	92.44	265.88	337.96	301.92	20744.56	35049.22	27403.83	3.32
NO.(TATA)	65	65	65	65	65	65	65	65	65	65	65
AVG(TATA)	88.94	117.72	103.32	108.48	266.06	337.75	301.91	24529.41	40469.00	31982.93	3.31
NO.(OTHERS)	15	15	15	15	15	15	15	15	15	15	15
AVG(OTHERS)	16.24	33.90	24.85	22.93	265.11	338.86	301.99	4343.50	11563.48	7561.04	4.43

SDELTRUK		OTHERS	TATA	ALL
Age(L)	0	0	5	5
Age(L)	1	0	7	7
Age(L)	2	2	10	12
Age(L)	3	5	14	19
Age(L)	5	1	8	9
Age(L)	7	2	3	5
Age(L)	10	0	5	5
Age(L)	15	4	5	9
Age(L)	20	0	5	5
		14	62	76

RDELTRUK		ALL
dist(L)	0	5
dist(L)	50	14
dist(L)	100	15
dist(L)	200	7
dist(L)	300	14
dist(L)	400	12
dist(L)	500	9
dist(L)	600	2
dist(L)	700	1
dist(L)	800	0
dist(L)	900	1
dist(L)	1000	0
		80

===

Annexure III.30 contd.

SDELTRUK		OTHERS	TATA	ALL
milage	2	2	2	4
milage	2.5	0	7	7
milage	3	3	23	26
milage	3.5	1	18	19
milage	4	2	11	13
milage	4.5	0	2	2
milage	5	2	2	4
milage	6	4	0	4
milage	8	1	0	1
milage	>8	0	0	0
		15	65	80

SDELTRUK		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	1
Month/max	apr	4
Month/max	may	0
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		5

Note: No information on month of min use.

RDELTRUK		ALL
Any ET	Yes	80

SDELTRUK		ALL
Frac ET(L)	0	9
Frac ET(L)	10	8
Frac ET(L)	20	7
Frac ET(L)	30	16
Frac ET(L)	40	13
Frac ET(L)	50	2

Annexure III.31 : Delhi/New Delhi----LCVs (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons. (km/litre)
	low	high	ave	given	low	high	ave	low	high	ave	
No.(ALL)	12	12	12	12	12	12	12	12	12	12	12
AVG(ALL)	40.49	53.48	46.98	51.55	266.48	335.60	301.04	11079.04	18156.74	14394.95	7.33
No.(DCM TOYOTA)	2	2	2	2	2	2	2	2	2	2	2
AVG(DCM TOYOTA)	52.27	66.36	59.32	72.50	252.46	326.47	289.47	13217.42	21678.79	17194.63	7.75
No.(MATADOR)	2	2	2	2	2	2	2	2	2	2	2
AVG(MATADOR)	6.35	12.69	9.52	10.00	273.75	344.72	309.24	1696.31	4320.73	2892.51	11.50
No.(MITSUBISHI)	3	3	3	3	3	3	3	3	3	3	3
AVG(MITSUBISHI)	29.17	40.48	34.82	42.86	228.46	300.11	264.29	6210.07	11674.21	8736.04	7.33
No.(TATA)	2	2	2	2	2	2	2	2	2	2	2
AVG(TATA)	85.00	103.33	94.17	92.50	304.17	365.00	334.58	25854.17	37716.67	31506.60	5.50
HERS)	3	3	3	3	3	3	3	3	3	3	3
HERS)	37.04	51.85	44.44	46.67	283.89	351.48	317.69	10927.47	18475.31	14447.92	5.50

SDELLCV		OTHERS	TATA	MITSUBISH	MATADOR	DCM TOYOT	ALL
Age(L)	0	0	0	2	0	1	3
Age(L)	1	2	1	0	0	1	4
Age(L)	2	0	0	1	1	0	2
Age(L)	3	0	0	0	0	0	0
Age(L)	5	1	0	0	0	0	1
Age(L)	7	0	0	0	0	0	0
Age(L)	10	0	1	0	1	0	2
Age(L)	15	0	0	0	0	0	0
Age(L)	20	0	0	0	0	0	0
		3	2	3	2	2	12

SDELLCV		ALL
dist(L)	0	0
dist(L)	50	3
dist(L)	100	2
dist(L)	200	0
dist(L)	300	4
dist(L)	400	0
dist(L)	500	2
dist(L)	600	1
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		12

===

Annexure III.31 contd.

SDELLCV		OTHERS	TATA	MITSU	MATADOR	DCMTOYOTA	ALL
milage	4	0	0	0	0	0	0
milage	5	1	1	0	0	0	2
milage	6	2	1	0	0	1	4
milage	8	0	0	3	0	0	3
milage	10	0	0	0	1	1	2
milage	11	0	0	0	0	0	0
milage	12	0	0	0	0	0	0
milage	14	0	0	0	1	0	1
milage	>14	0	0	0	0	0	0
		3	2	3	2	2	12

SDELLCV		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	1
Month/max	may	0
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	1
Month/max	nov	0
Month/max	dec	0
		2

Note: No information on month of min use.

SDELLCV		ALL
Any ET	Yes	12

SDELLCV		ALL
Frac ET(L)	0	0
Frac ET(L)	10	1
Frac ET(L)	20	1
Frac ET(L)	30	0
Frac ET(L)	40	3
Frac ET(L)	50	0

Annexure III.32 : Delhi/New Delhi----Tempos (Freight Transport)

	Fuel use per day(lit)-------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
SDELTEMP											
No.(ALL)	31	31	31	31	31	31	31	31	31	31	31
AVG(ALL)	7.75	15.95	11.77	12.54	265.84	338.84	302.34	2129.71	5466.68	3626.27	8.92
No.(MATADOR)	21	21	21	21	21	21	21	21	21	21	21
AVG(MATADOR)	6.75	14.72	10.66	10.91	262.07	337.00	299.53	1790.38	4969.32	3208.20	8.88
No.(OTHERS)	10	10	10	10	10	10	10	10	10	10	10
AVG(OTHERS)	9.85	18.54	14.11	15.96	273.75	342.69	308.22	2842.30	6511.12	4504.22	9.06

SDELTEMP		OTHERS	MATADOR	ALL
Age(L)	0	0	0	0
Age(L)	1	2	2	4
Age(L)	2	3	6	9
Age(L)	3	2	7	9
Age(L)	5	1	4	5
Age(L)	7	0	1	1
Age(L)	10	1	1	2
Age(L)	15	1	0	1
Age(L)	20	0	0	0
		10	21	31

SDELTEMP		ALL
dist(L)	0	9
dist(L)	50	10
dist(L)	100	11
dist(L)	200	0
dist(L)	300	1
dist(L)	400	0
dist(L)	500	0
dist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		31

Annexure III.32 contd.

SDELTEMP		OTHERS	MATADOR	ALL
milage	4	1	0	1
milage	6	1	1	2
milage	8	4	9	13
milage	10	1	8	9
milage	11	0	2	2
milage	12	1	1	2
milage	14	2	0	2
milage	16	0	0	0
milage	>16	0	0	0
		10	21	31

SDELTEMP		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	1
Month/max	apr	0
Month/max	may	1
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		2

SDELTEMP		ALL
Month/min	jan	2
Month/min	feb	0
Month/min	mar	0
Month/min	apr	2
Month/min	may	0
Month/min	jun	0
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		4

SDELTEMP		ALL
Any ET	Yes	31

SDELTEMP		ALL
Frac ET(L)	0	2
Frac ET(L)	10	4
Frac ET(L)	20	1
Frac ET(L)	30	6
Frac ET(L)	40	10
Frac ET(L)	50	0

Annexure III.33 : Delhi/New Delhi----Three Wheelers (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(all)	31	31	31	31	31	31	31	31	31	31	31
AVG(all)	3.05	6.76	4.85	5.13	256.61	331.82	294.21	793.38	2249.65	1436.70	16.34
No.(LAMBERETTA)	28	28	28	28	28	28	28	28	28	28	28
AVG(LAMBERETTA)	3.20	6.93	5.02	5.26	259.73	333.79	296.76	835.91	2312.25	1492.13	16.27
No.(OTHERS)	3	3	3	3	3	3	3	3	3	3	3
AVG(OTHERS)	1.59	5.25	3.29	4.00	227.48	313.38	270.43	396.46	1665.38	919.35	17.04

DEL3W		OTHERS	LAMBERETT	ALL
Age(L)	0	0	2	2
Age(L)	1	0	1	1
Age(L)	2	1	4	5
Age(L)	3	0	3	3
Age(L)	5	0	5	5
Age(L)	7	2	7	9
Age(L)	10	0	2	2
Age(L)	15	0	2	2
Age(L)	20	0	1	0
		3	27	29

SDEL3W		ALL
dist(L)	0	11
dist(L)	50	14
dist(L)	100	5
dist(L)	200	1
st(L)	300	0
t(L)	400	0
t(L)	500	0
ist(L)	600	0
dist(L)	700	0
dist(L)	800	0
dist(L)	900	0
dist(L)	1000	0
		31

Annexure III.33 contd.

SDEL3W		OTHERS	LAMBERETT	ALL
milage	10	0	1	1
milage	12	1	5	6
milage	14	1	5	6
milage	16	0	4	4
milage	18	0	6	6
milage	20	0	5	5
milage	22	0	0	0
milage	24	0	0	0
milage	>24	1	2	3
		3	28	31

SDEL3W		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	1
Month/min	apr	0
Month/min	may	0
Month/min	jun	0
Month/min	july	0
Month/min	aug	1
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		2

Note: No information on month of max use.

SDEL3W		ALL
Any ET	Yes	31

SDEL3W		ALL
Frac ET(L)	0	3
Frac ET(L)	10	4
Frac ET(L)	20	1
Frac ET(L)	30	3
Frac ET(L)	40	4
Frac ET(L)	50	1

Annexure III.34 : Haryana----Trucks (Frieght Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high		(km/lit)
Total no.	1414	1414	1414	1414	1414	1414	1414	1414	1414	1414	1414
avg(all)	33.64	57.81	45.70	48.24	270.86	340.34	305.60	9273.90	19825.47	14482.20	3.49
No.in C	358	358	358	358	358	358	358	358	358	358	358
avg(C)	30.50	54.47	42.46	44.31	271.33	342.65	306.99	8361.49	18742.37	13478.34	3.48
No.in D	897	897	897	897	897	897	897	897	897	897	897
avg(D)	34.53	58.69	46.58	49.49	271.18	339.72	305.45	9571.98	20136.80	14789.45	3.48
No.in E	159	159	159	159	159	159	159	159	159	159	159
avg(E)	35.74	60.47	48.08	50.11	267.95	338.63	303.29	9664.15	20530.84	15029.34	3.45
No.Leyland	224	224	224	224	224	224	224	224	224	224	224
avg(Leyl)	33.10	57.15	45.11	48.87	256.62	328.61	292.62	8671.00	18924.53	13701.62	3.61
No.Tata	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190
avg(Tata)	33.79	58.00	45.87	48.18	273.64	342.66	308.15	9405.17	20022.49	14651.55	3.46

SHARTRUK		Tata	Leyland	All
Age(L)	0	120	8	128
Age(L)	1	173	44	217
Age(L)	2	296	59	355
Age(L)	3	271	67	338
Age(L)	5	146	37	183
Age(L)	7	98	8	106
Age(L)	10	74	1	75
Age(L)	15	11	0	11
Age(L)	20	0	0	0
		1189	224	1413

SHARTRUK		Tata	Leyland	All
dist(L)	0	34	3	37
dist(L)	50	288	43	331
dist(L)	100	519	108	627
dist(L)	200	227	46	273
dist(L)	300	89	12	101
dist(L)	400	20	4	24
dist(L)	500	5	6	11
dist(L)	600	5	1	6
dist(L)	700	1	0	1
dist(L)	800	0	0	0
		1191	223	1411

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Annexure III.34 contd.

SHARTRUK	.		Tata	Leyland	All
milage	<2.5	2.5	136	1	137
milage	2.5-3	3	213	56	269
milage	3-3.5	3.5	487	81	568
milage	3.5-4	4	244	54	298
milage	4-5	5	31	7	38
milage	5-6	6	5	15	20
milage	6-8	8	52	8	60
milage	8-10	10	21	2	23
milage	>10	>10	1	0	1
			1189	224	1413

SHARTRUK	ALL
Month/max jan	18
Month/max feb	26
Month/max mar	21
Month/max apr	11
Month/max may	70
Month/max jun	0
Month/max july	0
Month/max aug	0
Month/max sep	0
Month/max oct	0
Month/max nov	5
Month/max dec	6
	157

SHARTRUK	ALL
Month/min jan	5
Month/min feb	19
Month/min mar	38
Month/min apr	140
Month/min may	159
Month/min jun	8
Month/min july	12
Month/min aug	0
Month/min sep	1
Month/min oct	1
Month/min nov	1
Month/min dec	3
	387

SHARTRUK		All
Any ET	Yes	1328

SHARTRUK		ALL
Frac ET(L	0	143
Frac ET(L	10	350
Frac ET(L	20	283
Frac ET(L	30	148
Frac ET(L	40	139
Frac ET(L	50	16

Annexure III.35 : Haryana----LCVs (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/lit)
SHARLCV.WK1											
Total No.	350	350	350	350	350	350	350	350	350	350	350
avg(all)	17.59	30.56	24.07	25.14	274.24	331.98	303.11	4590.37	9859.42	7224.89	7.59
No.of C	122	122	122	122	122	122	122	122	122	122	122
avg(C)	15.42	29.82	22.61	22.52	287.08	339.07	313.08	4419.54	10220.27	7319.90	7.10
No.of D	178	178	178	178	178	178	178	178	178	178	178
avg(D)	19.34	31.02	25.18	27.52	265.23	326.04	295.63	4733.64	9498.71	7116.17	7.96
No.of E	50	50	50	50	50	50	50	50	50	50	50
avg(E)	16.64	30.73	23.68	23.08	274.97	335.80	305.38	4497.13	10263.07	7380.10	7.48

SHARLCV.WK1(d)		All
Age(L)	0	26
Age(L)	1	87
Age(L)	2	93
Age(L)	3	77
Age(L)	5	32
Age(L)	7	14
Age(L)	10	14
Age(L)	15	6
Age(L)	20	0
		349

SHARLCV.WK1(d)		All
dist(L)	0	3
dist(L)	50	91
dist(L)	100	183
dist(L)	200	58
dist(L)	300	8
dist(L)	400	1
dist(L)	500	2
dist(L)	600	0
dist(L)	700	2
dist(L)	800	1
dist(L)	900	0
dist(L)	1000	0
		349

Annexure III.35 contd.

SHARLCV.WK1(d)		All
milage	5	58
milage	6	32
milage	7	46
milage	8	109
milage	9	17
milage	9.5	0
milage	10	78
milage	>10	10
		350

SHARLCV.WK1(d)		All
Month/max	jan	13
Month/max	feb	20
Month/max	mar	7
Month/max	apr	1
Month/max	may	28
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	1
Month/max	nov	1
Month/max	dec	4
		75

SHARLCV.WK1(d)		All
Month/min	jan	2
Month/min	feb	10
Month/min	mar	21
Month/min	apr	56
Month/min	may	51
Month/min	jun	5
Month/min	july	2
Month/min	aug	2
Month/min	sep	0
Month/min	oct	0
Month/min	nov	1
Month/min	dec	2
		152

SHARLCV.WK1(d)		All
Any ET	Yes	329

SHARLCV.WK1(d)		All
Frac ET(L)	0	160
Frac ET(L)	10	80
Frac ET(L)	20	68
Frac ET(L)	30	10
Frac ET(L)	40	1
Frac ET(L)	50	0
		319

Annexure III.36 : Haryana -- Tempos (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/lit)
SHARTEMP.WK1											
No.dtempo(all)	440	440	440	440	440	440	440	440	440	440	440
avg(dtemp,all)	8.18	16.95	12.52	13.90	248.31	322.42	285.36	2041.25	5474.41	3757.83	7.34
No.dtempo(C)	127	127	127	127	127	127	127	127	127	127	127
avg(dtemp,C)	7.49	15.62	11.52	12.63	257.74	327.16	292.45	1941.39	5143.09	3542.24	7.34
No.dtempo(D)	249	249	249	249	249	249	249	249	249	249	249
avg(dtemp,D)	8.39	17.39	12.85	14.31	243.81	320.05	281.93	2061.81	5578.60	3820.21	7.36
No.dtempo(E)	64	64	64	64	64	64	64	64	64	64	64
avg(dtemp,E)	8.74	17.85	13.25	14.83	247.14	322.23	284.68	2159.41	5726.52	3942.97	7.27
No.dtempo(Matador)	166	166	166	166	166	166	166	166	166	166	166
avg(dtemp,Matador)	7.75	16.15	11.91	12.64	250.17	318.46	284.32	1948.48	5175.63	3562.06	7.71
No.dtempo(other)	274	274	274	274	274	274	274	274	274	274	274
avg(dtemp,other)	8.44	17.43	12.90	14.66	247.18	324.81	286.00	2097.45	5655.43	3876.44	7.12

Note : dtempo = tempos using diesel (HSD)

SHARTEMP.WK1(d)		Others	Matador	All
Age(L)	0	3	7	10
Age(L)	1	51	46	97
Age(L)	2	105	56	161
Age(L)	3	83	42	125
Age(L)	5	28	12	40
Age(L)	7	2	2	4
Age(L)	10	1	0	1
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		273	165	438

SHARTEMP.WK1(d)		All
dist(L)	0	42
dist(L)	50	283
dist(L)	100	114
dist(L)	200	1
dist(L)	300	0
		440

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Annexure III.36 contd.

SHARTEMP.WK1(d)		OTHERS	MATADOR	All
milage	6	35	29	64
milage	8	209	103	312
milage	10	30	29	59
milage	12	0	1	1
milage	14	0	0	0
milage	16	0	4	4
milage	18	0	0	0
milage	>18	0	0	0
		274	166	440

SHARTEMP.WK1(d)		All
Month/max	jan	9
Month/max	feb	21
Month/max	mar	10
Month/max	apr	6
Month/max	may	8
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	3
Month/max	nov	5
Month/max	dec	2
		64

SHARTEMP.WK1(d)		All
Month/min	jan	2
Month/min	feb	10
Month/min	mar	18
Month/min	apr	43
Month/min	may	61
Month/min	jun	2
Month/min	july	5
Month/min	aug	3
Month/min	sep	1
Month/min	oct	0
Month/min	nov	3
Month/min	dec	0
		148

SHARTEMP.WK1(d)		All
Any ET	Yes	414

SHARTEMP.WK1(d)		All
Frac ET(L)	0	129
Frac ET(L)	10	39
Frac ET(L)	20	24
Frac ET(L)	30	78
Frac ET(L)	40	137
Frac ET(L)	50	2
		409

Annexure III.37 : Haryana -- Jeeps (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year------------			annual fuel con(litres)----fuel cons.			
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
djeep(all)	50	50	50	50	50	50	50	50	50	50	50
avg(djeep,all)	6.75	13.60	10.16	10.77	231.73	300.03	265.88	1609.09	4157.61	2883.35	11.69
djeep(C)	15	15	15	15	15	15	15	15	15	15	15
avg(djeep,C)	6.14	12.54	9.29	9.97	255.50	313.63	284.56	1543.23	3993.98	2768.61	10.02
djeep(D)	27	27	27	27	27	27	27	27	27	27	27
avg(djeep,D)	6.53	13.05	9.79	11.00	212.84	286.74	249.79	1476.57	3832.21	2654.39	13.26
djeep(E)	8	8	8	8	8	8	8	8	8	8	8
avg(djeep,E)	8.65	17.45	13.05	11.50	250.94	319.38	285.16	2179.86	5562.66	3871.26	9.30
djeep(mahindra)	36	36	36	36	36	36	36	36	36	36	36
avg(djeep,mahindra)	6.43	12.96	9.67	10.25	223.84	293.35	258.60	1466.36	3845.39	2655.87	11.95
djeep(others)	14	14	14	14	14	14	14	14	14	14	14
avg(djeep,others)	7.58	15.26	11.42	12.11	252.02	317.20	284.61	1976.12	4960.47	3468.30	11.00
SHARJEEP.WK1											
Pjeep(all)	74	74	74	74	74	74	74	74	74	74	74
avg(Pjeep,all)	4.54	9.00	6.76	8.47	219.60	261.04	240.32	1047.03	2456.34	1751.69	15.49
Pjeep(C)	14	14	14	14	14	14	14	14	14	14	14
avg(Pjeep,C)	4.43	8.86	6.65	7.36	228.56	254.63	241.60	977.55	2186.51	1582.03	14.79
Pjeep(D)	60	60	60	60	60	60	60	60	60	60	60
avg(Pjeep,D)	4.56	9.03	6.78	8.73	217.51	262.53	240.02	1063.25	2519.30	1791.27	15.65
Pjeep(Gypsy)	18	18	18	18	18	18	18	18	18	18	18
avg(Pjeep,Gypsy)	5.71	10.68	8.20	10.11	224.86	273.98	249.42	1378.15	3093.62	2235.88	16.33
Pjeep(Mahindra)	42	42	42	42	42	42	42	42	42	42	42
avg(Pjeep,Mahindra)	4.16	8.37	6.25	7.93	211.56	254.05	232.81	907.49	2202.10	1554.80	14.76
Pjeep(Others)	14	14	14	14	14	14	14	14	14	14	14
avg(Pjeep,Others)	4.18	8.70	6.42	8.00	236.96	265.35	251.15	1039.94	2399.71	1719.83	16.57

Note : djeep = jeeps using diesel (HSD)
djeep = jeeps using petrol (MS)

Annexure III.37 contd.

SHARJEEP.WK1(d)		Others	Mahindra	All/djeep
Age(L)	0	2	6	8
Age(L)	1	1	6	7
Age(L)	2	6	9	15
Age(L)	3	3	7	10
Age(L)	5	1	5	6
Age(L)	7	0	2	2
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		13	35	48

SHARJEEP.wk1(d)		All
Dist(L)	0	2
Dist(L)	50	24
Dist(L)	100	23
Dist(L)	200	1
Dist(L)	300	0
Dist(L)	400	0
Dist(L)	500	0
Dist(L)	600	0
Dist(L)	700	0
Dist(L)	800	0
Dist(L)	900	0
Dist(L)	1000	0
		50

SHARJEEP.wk1(d)		Others	Mahindra	All
Milage	5	0	1	1
Milage	6	1	0	1
Milage	7	0	0	0
Milage	8	6	8	14
Milage	9	0	1	1
Milage	10	3	6	9
Milage	11	0	1	1
Milage	12	0	7	7
Milage	13	0	0	0
Milage	14	0	1	1
Milage	15	1	1	2
Milage	16	0	7	7
Milage	17	1	1	2
Milage		2	2	4
Milage	total	14	36	50

Annexure III.37 contd.

SHARJEEP.wk1(d)		All
Month/max	jan	6
Month/max	feb	9
Month/max	mar	4
Month/max	apr	1
Month/max	may	7
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	1
		28

SHARJEEP.wk1(d)		All
Any ET	Yes	28

SHARJEEP.wk1(d)		All
Frac ET(L)	0	22
Frac ET(L)	10	0
Frac ET(L)	20	1
Frac ET(L)	30	0
Frac ET(L)	40	1
Frac ET(L)	50	0
		24

SHARJEEP.wk1(d)		All
Month/min	jan	0
Month/min	feb	7
Month/min	mar	11
Month/min	apr	15
Month/min	may	12
Month/min	jun	1
Month/min	july	1
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		47

SHARJEEP.wk1(p)		Others	Mahindra	Gypsy	ALL
Age(L)	0	4	8	4	16
Age(L)	1	1	10	7	18
Age(L)	2	2	6	2	10
Age(L)	3	5	12	3	20
Age(L)	5	2	1	1	4
Age(L)	7	0	4	1	5
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		14	41	18	73

Annexure III.37 contd.

SHARJEEP.wk1(p)		All
Dist(L)	0	5
Dist(L)	50	42
Dist(L)	100	24
Dist(L)	200	3
Dist(L)	300	0
Dist(L)	400	0
		74

SHARJEEP.wk1(p)		Others	Mahindra	Gypsy	All
Milage	5	0	0	0	0
Milage	6	0	0	0	0
Milage	7	0	0	0	0
Milage	8	0	0	0	0
Milage	9	0	0	0	0
Milage	10	0	4	0	4
Milage	11	0	1	0	1
Milage	12	0	5	0	5
Milage	13	0	1	0	1
Milage	14	0	3	2	5
Milage	15	2	5	4	11
Milage	16	7	19	7	33
Milage	17	2	1	2	5
Milage		3	3	3	9
Milage	total	14	42	18	74

SHARJEEP.wk1(p)		All
Month/max	jan	9
Month/max	feb	7
Month/max	mar	6
Month/max	apr	0
Month/max	may	20
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		42

Annexure III.37 contd.

SHARJEEP.wk1(p)		All
Month/min	jan	0
Month/min	feb	10
Month/min	mar	11
Month/min	apr	38
Month/min	may	14
Month/min	jun	0
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		73

SHARJEEP.wk1(p)		All
Any ET	Yes	19

SHARJEEP.wk1(p)		All
Frac ET(L)	0	13
Frac ET(L)	10	0
Frac ET(L)	20	0
Frac ET(L)	30	0
Frac ET(L)	40	0
Frac ET(L)	50	0

Annexure III.38 : Haryana----Three Wheelers (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year-----------			annual fuel con(litres)----fuel c			
	low	high	ave	given	low	high	ave	low	high	ave	(km/li
No.(d3W,all)	15	15	15	15	15	15	15	15	15	15	1
avg(d3W,all)	4.32	10.53	7.31	8.67	259.56	350.13	304.84	1098.39	3829.31	2463.85	9.
No.(d3W,C)	5	5	5	5	5	5	5	5	5	5	
avg(d3W,C)	4.84	12.04	8.29	8.00	255.50	389.33	322.42	1237.39	5124.26	3180.83	8.
No.(d3W,D)	8	8	8	8	8	8	8	8	8	8	
avg(d3W,D)	3.59	9.24	6.29	8.38	258.54	326.98	292.76	908.82	2990.71	1949.76	8.9
No.(d3W,E)	2	2	2	2	. 2	2	2	2	2	2	
avg(d3W,E)	5.96	11.92	8.94	11.50	273.75	344.72	309.24	1509.13	3946.37	2727.75	15.5
SHAR3W											
No.(P3W,all)	139	139	139	139	139	139	139	139	139	139	13
No.(P3W,all)	2.21	5.95	3.98	4.64	263.06	335.41	299.24	620.15	2024.19	1322.17	16.7
No.(P3W,C)	45	45	45	45	45	45	45	45	45	45	4
No.(P3W,C)	2.02	6.14	3.95	4.57	248.83	329.49	289.16	540.16	2058.31	1299.23	13.6
No.(P3W,D)	71	71	71	71	71	71	71	71	71	71	7
No.(P3W,D)	2.31	5.88	4.02	4.76	271.61	339.01	305.31	667.57	2025.09	1346.33	18.2
No.(P3W,E)	23	23	23	23	23	23	23	23	23	23	2
No.(P3W,E)	2.26	5.77	3.94	4.43	264.49	335.91	300.20	630.26	1954.67	1292.47	18.2

Note : d3W = 3-wheelers using diesel (HSD)
p3W = 3-wheelers using petrol (MS)

SHAR3W		d3W/all
Age(L)	0	0
Age(L)	1	4
Age(L)	2	8
Age(L)	3	2
Age(L)	5	1
Age(L)	7	0
Age(L)	10	0
Age(L)	15	0
Age(L)	20	0
		15

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Annexure III.38 contd.

SHAR3W		d3W/all
dist(L)	0	5
dist(L)	50	9
dist(L)	100	1
dist(L)	200	0
dist(L)	300	0
dist(L)	400	0
		15

SHAR3W		d3W/all
milage	3	0
milage	4	0
milage	5	1
milage	6	1
milage	7	4
milage	8	2
milage	9	0
milage	10	4
milage	12	2
milage	14	0
milage	16	0
milage	18	0
milage	20	0
milage	22	0
milage	24	0
milage	26	1
milage	>26	0
		15

SHAR3W		d3W/all
Month/max	jan	1
Month/max	feb	1
Month/max	mar	0
Month/max	apr	0
Month/max	may	0
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	1
		3

Annexure III.38 contd.

SHAR3W		d3W/all
Month/min	jan	1
Month/min	feb	1
Month/min	mar	1
Month/min	apr	1
Month/min	may	0
Month/min	jun	0
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	1
		5

SHAR3W		P3W/ALL
Age(L)	0	4
Age(L)	1	20
Age(L)	2	53
Age(L)	3	49
Age(L)	5	9
Age(L)	7	4
Age(L)	10	0
Age(L)	15	0
Age(L)	20	0
		139

SHAR3W		P3W/ALL
dist(L)	0	61
dist(L)	50	54
dist(L)	100	23
dist(L)	200	1
dist(L)	300	0
		139

SHAR3W		P3W/ALL
milage	6	2
milage	7	3
milage	8	1
milage	9	1
milage	10	12
milage	12	61
milage	14	5
milage	16	4
milage	18	3
milage	20	6
milage	22	2
milage	24	2
milage	26	13
milage	>26	24
		139

SHAR3W		d3W/all
Any ET	Yes	14

SHAR3W		d3W/all
Frac ET(L)	0	5
Frac ET(L)	10	2
Frac ET(L)	20	1
Frac ET(L)	30	2
Frac ET(L)	40	4
Frac ET(L)	50	0

Annexure III.38 contd.

SHAR3W		P3W/ALL
Month/max	jan	3
Month/max	feb	2
Month/max	mar	1
Month/max	apr	3
Month/max	may	4
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	1
Month/max	dec	3
		17

SHAR3W		P3W/ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	2
Month/min	apr	3
Month/min	may	1
Month/min	jun	3
Month/min	july	3
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	5
		17

SHAR3W		P3W/ALL
Any ET	Yes	112

SHAR3W		P3W/ALL
Frac ET(L)	0	32
Frac ET(L)	10	35
Frac ET(L)	20	14
Frac ET(L)	30	4
Frac ET(L)	40	23
Frac ET(L)	50	1

Annexure III.39 : Haryana----Cars (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year------------			annual fuel con(litres)----			fuel [illegible]
	low	high	ave	given	low	high	ave	low	high	ave	(km/l[illegible]
SHARCAR											
No.(CAR,ALL)	24	24	24	24	24	24	24	24	24	24	24
AVG(CAR,ALL)	6.25	11.93	9.07	11.40	202.10	230.66	216.38	1372.98	2860.04	2116.51	12.7[illegible]
No.(CAR,C)	4	4	4	4	4	4	4	4	4	4	4
AVG(CAR,C)	7.71	12.92	10.31	12.75	200.75	200.75	200.75	1992.29	3224.17	2608.23	13.7[illegible]
No.(CAR,D)	20	20	20	20	20	20	20	20	20	20	20
AVG(CAR,D)	5.95	11.73	8.82	11.13	202.37	236.64	219.51	1249.12	2787.21	2018.16	12.[illegible]
No.(CAR,AMBY)	8	8	8	8	8	8	8	8	8	8	8
AVG(CAR,AMBY)	8.03	15.30	11.63	14.50	193.65	223.56	208.61	1798.62	3698.62	2748.62	10.3[illegible]
No.(CAR,FIAT)	5	5	5	5	5	5	5	5	5	5	5
AVG(CAR,FIAT)	4.88	9.76	7.32	9.40	216.57	253.07	234.82	1091.23	2567.75	1829.49	12.[illegible]
No.(CAR,MARUTI)	7	7	7	7	7	7	7	7	7	7	7
AVG(CAR,MARUTI)	3.45	7.24	5.33	7.07	201.04	232.90	216.97	616.37	1584.53	1100.45	17.[illegible]
No.(CAR,OTHERS)	4	4	4	4	4	4	4	4	4	4	4
AVG(CAR,OTHERS)	9.29	16.07	12.68	15.25	202.78	212.92	207.85	2197.97	3780.36	2989.16	11.[illegible]

SHARCAR		OTHERS	MARUTI	FIAT	AMBY	ALL
Age(L)	0	0	4	1	0	5
Age(L)	1	2	0	2	1	5
Age(L)	2	1	1	1	3	6
Age(L)	3	0	1	1	3	5
Age(L)	5	1	1	0	1	3
Age(L)	7	0	0	0	0	0
Age(L)	10	0	0	0	0	0
Age(L)	15	0	0	0	0	0
Age(L)	20	0	0	0	0	0
		4	7	5	8	24

SHARCAR		ALL
dist(L)	0	2
dist(L)	50	14
dist(L)	100	6
dist(L)	200	2
dist(L)	300	0
		24

Annexure III.39 contd.

SHARCAR		OTHERS	MARUTI	FIAT	AMBY	ALL
milage	7	0	0	1	0	1
milage	8	0	0	0	0	0
milage	9	0	0	0	0	0
milage	10	3	0	2	6	11
milage	12	0	0	0	2	2
milage	14	1	1	1	0	3
milage	15	0	1	0	0	1
milage	16	0	1	0	0	1
milage	17	0	1	0	0	1
milage	18	0	1	0	0	1
milage	>18	0	2	1	0	3
		4	7	5	8	24

SHARCAR		ALL
Month/max	jan	1
Month/max	feb	0
Month/max	mar	5
Month/max	apr	7
Month/max	may	11
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		24

SHARCAR		ALL
Any ET	Yes	24

SHARCAR		ALL
Frac ET(L)	0	2
Frac ET(L)	10	0
Frac ET(L)	20	0
Frac ET(L)	30	0
Frac ET(L)	40	0
Frac ET(L)	50	0

SHARCAR		ALL
Month/min	jan	0
Month/min	feb	1
Month/min	mar	0
Month/min	apr	16
Month/min	may	7
Month/min	jun	0
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		24

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel con
	low	high	ave	given	low	high	ave	low	high	ave	(km/lit
No.(all)	408	408	408	408	408	408	408	408	408	408	408
avg(all)	128.01	162.55	145.28	150.42	242.48	323.51	283.00	31070.02	52615.67	41842.85	[illegible]
No.(B)	51	51	51	51	51	51	51	51	51	51	51
avg(B)	116.85	147.73	132.29	137.12	240.55	323.12	281.83	28187.45	47770.21	37978.83	[illegible]
No.(C)	171	171	171	171	171	171	171	171	171	171	171
avg(C)	133.86	165.75	149.80	157.05	242.95	323.46	283.21	32526.20	53634.64	43080.42	[illegible]
No.(D)	151	151	151	151	151	151	151	151	151	151	151
avg(D)	124.37	163.92	144.15	145.58	242.50	323.61	283.05	30199.34	53085.80	41642.57	[illegible]
No.(E)	35	35	35	35	35	35	35'	35	35	35	35
avg(E)	131.33	162.57	146.95	158.23	242.95	323.93	283.44	31912.21	52669.49	42290.85	[illegible]
No.(Leyland)	48	48	48	48	48	48	48	48	48	48	48
avg(Leyland)	113.90	149.95	131.93	137.25	242.89	323.85	283.37	27666.94	48563.86	38115.40	[illegible]
No.(Tata)	314	314	314	314	314	314	314	314	314	314	314
avg(Tata)	138.85	174.26	156.56	161.41	242.36	323.40	282.88	33696.79	56400.60	45048.69	3.27
No.(others)	46	46	46	46	46	46	46	46	46	46	46
avg(others)	68.71	95.74	82.22	89.13	242.93	323.90	283.42	16690.53	31007.40	23848.96	[illegible]

SRAJTRUK		Leyland	Tata	Others	ALL
Age(L)	0	0	9	0	9
Age(L)	1	9	32	11	52
Age(L)	2	24	67	13	104
Age(L)	3	11	67	16	94
Age(L)	5	2	46	3	51
Age(L)	7	1	44	0	45
Age(L)	10	0	32	0	32
Age(L)	15	0	13	0	13
Age(L)	20	1	0	0	1
		48	310	43	401

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Annexure III.40 contd.

SRAJTRUK		ALL
dist(L)	0	0
dist(L)	50	0
dist(L)	100	4
dist(L)	200	50
dist(L)	300	135
dist(L)	400	84
dist(L)	500	43
dist(L)	600	42
dist(L)	700	41
dist(L)	800	9
dist(L)	900	0
dist(L)	1000	0
		408

SRAJTRUK		Leyland	Tata	Others	ALL
milage	2.5	20	6	0	26
milage	3	26	154	16	196
milage	3.5	1	117	6	124
milage	4	1	33	16	50
milage	5	0	0	3	3
milage	6	0	3	2	5
milage	8	0	1	3	4
milage	10	0	0	0	0
milage	>10	0	0	0	0
		48	314	46	408

SRAJTRUK	Month/max	Month/min
jan	0	0
feb	1	0
mar	0	0
apr	0	0
may	0	0
jun	0	0
july	0	4
aug	0	1
sep	0	0
oct	0	0
nov	2	0
dec	0	0
	3	5

SRAJTRUK		ALL
Any ET	Yes	125

SRAJTRUK		ALL
Frac ET(L)	0	48
Frac ET(L)	10	57
Frac ET(L)	20	13
Frac ET(L)	30	8
Frac ET(L)	40	2
Frac ET(L)	50	0
		128

Annexure III.41 : Rajasthan----LCVs (Freight Transport)

	Fuel use per day(lit)-----------				Number of days of use per year------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(LCV,ALL)	58	58	58	58	58	58	58	58	58	58	58
AVG(LCV,ALL)	34.18	48.98	41.58	44.59	243.33	324.44	283.89	8316.13	15889.96	12103.04	6.96
No.(LCV,B)	5	5	5	5	5	5	5	5	5	5	5
AVG(LCV,B)	32.38	47.14	39.76	42.00	243.33	324.44	283.89	7879.37	15295.24	11587.30	6.80
No.(LCV,C)	29	29	29	29	29	29	29	29	29	29	29
AVG(LCV,C)	34.90	49.89	42.40	44.86	243.33	324.44	283.89	8493.09	16187.06	12340.08	6.91
No.(LCV,D)	18	18	18	18	18	18	18	18	18	18	18
AVG(LCV,D)	33.42	47.93	40.68	45.00	243.33	324.44	283.89	8132.18	15551.56	11841.87	7.11
No.(LCV,E)	6	6	6	6	6	6	6	6	6	6	6
AVG(LCV,E)	34.42	49.21	41.82	44.17	243.33	324.44	283.89	8376.65	15964.73	12170.69	6.83
(LCV,CANTER)	32	32	32	32	32	32	32	32	32	32	32
AVG(LCV,CANTER)	34.94	49.98	42.46	45.47	243.33	324.44	283.89	8501.28	16214.98	12358.13	6.75
(LCV,MITSU)	22	22	22	22	22	22	22	22	22	22	22
AVG(LCV,MITSU)	33.01	47.50	40.25	43.00	243.33	324.44	283.89	8031.32	15410.41	11720.86	7.16
(LCV,OTHERS)	4	4	4	4	4	4	4	4	4	4	4
AVG(LCV,OTHERS)	34.53	49.09	41.81	46.25	243.33	324.44	283.89	8401.45	15927.27	12164.36	7.50

SRAJLCV(d)		OTHERS	MITSU	CANTER	ALL
Age(L)	0	0	2	0	2
Age(L)	1	0	2	6	8
Age(L)	2	3	10	12	25
Age(L)	3	0	7	12	19
Age(L)	5	1	1	2	4
Age(L)	7	0	0	0	0
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		4	22	32	58

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Annexure III.41 contd.

SRAJLCV(d)		ALL
dist(L)	0	0
dist(L)	50	0
dist(L)	100	1
dist(L)	200	37
dist(L)	300	20
dist(L)	400	0
dist(L)	500	0
		58

SRAJLCV(d)		OTHERS	MITSU	CANTER	ALL
milage	2.5	0	0	0	0
milage	3	0	0	0	0
milage	3.5	0	0	0	0
milage	4	0	0	0	0
milage	4.5	0	0	0	0
milage	6	2	7	14	23
milage	8	1	14	18	33
milage	10	0	0	0	0
milage	>10	1	1	0	2
		4	22	32	58

SRAJLCV(d)		ALL
Any ET	Yes	58

SRAJLCV(d)		ALL
Frac ET(L)	0	0
Frac ET(L)	10	8
Frac ET(L)	20	3
Frac ET(L)	30	2
Frac ET(L)	40	0
Frac ET(L)	50	0
		13

Note: No information on months of max & min use.

Annexure III.42 : Rajasthan----Tempos (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(TEMPO,ALL),	62	62	62	62	62	62	62	62	62	62	62
AVG(TEMPO,ALL)	23.89	36.43	30.16	30.85	243.33	319.48	281.41	5814.06	11673.22	8743.64	8.32
No.(TEMPO,B)	12	12	12	12	12	12	12	12	12	12	12
AVG(TEMPO,B)	24.89	37.59	31.24	32.83	243.33	320.48	281.91	6057.58	12030.88	9044.23	8.17
No.(TEMPO,C)	27	27	27	27	27	27	27	27	27	27	27
AVG(TEMPO,C)	23.12	35.83	29.47	30.95	243.33	319.97	281.65	5625.40	11472.34	8548.87	8.28
No.(TEMPO,D)	20	20	20	20	20	20	20	20	20	20	20
AVG(TEMPO,D)	25.00	37.38	31.19	30.71	243.33	318.27	280.80	6082.63	12000.01	9041.32	8.40
No.(TEMPO,E)	3	3	3	3	3	3	3	3	3	3	3
AVG(TEMPO,E)	24.28	36.54	30.41	29.70	243.33	318.39	280.86	5908.47	11722.43	7309.64	8.46
No.(TEMPO,MATADOR)	59	59	59	59	59	59	59	59	59	59	59
AVG(TEMPO,MATADOR)	23.18	35.62	29.40	30.05	243.33	319.50	281.42	5640.80	11416.72	8528.76	8.39
No.(TEMPO,OTHERS)	3	3	3	3	3	3	3	3	3	3	3
AVG(TEMPO,OTHERS)	37.90	52.38	45.14	46.67	243.33	319.15	281.24	9221.56	16717.62	12969.59	7.00

SRAJTEMPO(d)		OTHERS	MATADOR	ALL
Age(L)	0	0	1	1
Age(L)	1	0	3	3
Age(L)	2	0	10	10
Age(L)	3	2	12	14
Age(L)	5	1	14	15
Age(L)	7	0	14	14
Age(L)	10	0	4	4
Age(L)	15	0	1	1
Age(L)	20	0	0	0
		3	59	62

SRAJTEMPO(d)		ALL
dist(L)	0	0
dist(L)	50	1
dist(L)	100	17
dist(L)	200	36
dist(L)	300	8
dist(L)	400	0
		62

Annexure III.42 contd.

SRAJTEMPO(d)		OTHERS	MATADOR	ALL
milage	2.5	0	0	0
milage	3	0	0	0
milage	3.5	0	0	0
milage	4	0	0	0
milage	5	0	3	3
milage	6	1	8	9
milage	8	2	14	16
milage	10	0	32	32
milage	>10	0	2	2
		3	59	62

SRAJTEMPO(d)		ALL
Any ET	Yes	20

SRAJTEMPO(d)		ALL
Frac ET(L)	0	0
Frac ET(L)	10	9
Frac ET(L)	20	2
Frac ET(L)	30	6
Frac ET(L)	40	3
Frac ET(L)	50	0
		20

Note : No information on months of max & min use.

Annexure III.43 : Rajasthan----Jeeps (Freight Transport)

	Fuel use per day(lit)------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
(JEEP,ALL)	39	39	39	39	39	39	39	39	39	39	39
AVG(JEEP,ALL)	16.29	26.40	21.35	22.38	243.33	324.44	283.89	3964.00	8566.30	6265.15	9.91
(JEEP,B)	2	2	2	2	2	2	2	2	2	2	2
AVG(JEEP,B)	15.00	25.00	20.00	20.75	243.33	324.44	283.89	3650.00	8111.11	5880.56	10.00
(JEEP,C)	22	22	22	22	22	22	22	22	22	22	22
AVG(JEEP,C)	17.04	27.21	22.13	23.31	243.33	324.44	283.89	4147.06	8827.97	6487.51	9.86
(JEEP,D)	13	13	13	13	13	13	13	13	13	13	13
AVG(JEEP,D)	15.41	25.47	20.44	21.54	243.33	324.44	283.89	3750.84	8263.53	6007.19	9.96
(JEEP,E)	2	2	2	2	2	2	2	2	2	2	2
AVG(JEEP,E)	15.00	25.00	20.00	19.25	243.33	324.44	283.89	3650.00	8111.11	5880.56	10.00
(JEEP,MAHIN)	39	39	39	39	39	39	39	39	39	39	39
AVG(JEEP,MAHIN)	16.29	26.40	21.35	22.38	243.33	324.44	283.89	3964.00	8566.30	6265.15	9.91

SRAJJEEP(d)		ALL(MAHIN)
Age(L)	0	0
Age(L)	1	0
Age(L)	2	1
Age(L)	3	5
Age(L)	5	9
Age(L)	7	15
Age(L)	10	7
Age(L)	15	2
Age(L)	20	0
		39

SRAJJEEP(d)		ALL
dist(L)	0	0
dist(L)	50	0
dist(L)	100	16
dist(L)	200	22
dist(L)	300	1
dist(L)	400	0
		39

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Annexure III.43 contd.

SRAJJEEP(d)		ALL
milage	5	0
milage	6	0
milage	8	0
milage	9	4
milage	10	30
milage	12	5
milage	14	0
milage	15	0
milage	16	0
milage	18	0
milage	>18	0
		39

SRAJJEEP(d)		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	0
Month/min	july	0
Month/min	aug	2
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		2

RRAJJEEP(d)		ALL
Any ET	Yes	39

SRAJJEEP(d)		ALL
Frac ET(L)	0	4
Frac ET(L)	10	5
Frac ET(L)	20	6
Frac ET(L)	30	3
Frac ET(L)	40	2
Frac ET(L)	50	0
		20

Note: No information on month of max use.

Annexure III.44 : Nainital -- LCVs (Freight Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
No.(dLCV,ALL)	41	41	41	41	41	41	41	41	41	41	41
AVG(dLCV,ALL)	70.63	92.20	81.41	91.80	139.61	189.60	164.60	9656.55	17149.56	13403.05	5.07
No.(dLCV,B)	12	12	12	12	12	12	12	12	12	12	12
AVG(dLCV,B)	68.61	93.33	80.97	93.33	139.92	196.02	167.97	9413.96	17979.63	13696.79	4.42
No.(dLCV,C)	19	19	19	19	19	19	19	19	19	19	19
AVG(dLCV,C)	69.34	88.68	79.01	88.63	144.72	194.24	169.48	9813.38	16862.57	13337.98	5.68
No.(dLCV,D)	10	10	10	10	10	10	10	10	10	10	10
AVG(dLCV,D)	75.50	97.50	86.50	96.00	129.54	173.07	151.31	9649.69	16698.75	13174.22	4.70
No.(dLCV,LEYLAND)	25	25	25	25	25	25	25	25	25	25	25
AVG(dLCV,LEYLAND)	76.33	97.80	87.07	97.20	133.58	182.78	158.18	10271.71	17921.50	14096.60	4.76
No.(dLCV,NISSAN)	14	14	14	14	14	14	14	14	14	14	14
AVG(dLCV,NISSAN)	69.64	93.57	81.61	93.57	139.92	188.29	164.11	9763.75	17757.54	13760.64	4.21
No.(dLCV,OTHERS)	2	2	2	2	2	2	2	2	2	2	2
AVG(dLCV,OTHERS)	6.25	12.50	9.38	12.00	212.92	283.89	248.40	1216.67	3244.44	2230.56	15.00

Note : dLCV = LCV using diesel (HSD)

SHAMLCV(d)		OTHERS	NISSAN	LEYLAND	ALL
Age(L)	0	0	3	9	12
Age(L)	1	2	8	7	17
Age(L)	2	0	1	4	5
Age(L)	3	0	2	4	6
Age(L)	5	0	0	1	1
Age(L)	7	0	0	0	0
Age(L)	10	0	0	0	0
Age(L)	15	0	0	0	0
Age(L)	20	0	0	0	0
		2	14	25	41

SHAMLCV(d)		ALL
dist(L)	0	0
dist(L)	50	2
dist(L)	100	2
dist(L)	200	3
dist(L)	300	17
dist(L)	400	11
dist(L)	500	6
dist(L)	600	0
		41

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Annexure III.44 contd.

SNANLCV(d)		OTHERS	NISSAN	LEYLAND	ALL
milage	2.5	0	0	0	0
milage	3	0	0	2	2
milage	3.5	0	0	0	0
milage	4	0	11	8	19
milage	4.5	0	0	0	0
milage	6	0	3	15	18
milage	8	0	0	0	0
milage	10	1	0	0	1
milage	>10	1	0	0	1
		2	14	25	41

SNANLCV(d)		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	0
Month/max	jun	25
Month/max	july	13
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		38

SNANLCV(d)		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	7
Month/min	july	26
Month/min	aug	3
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		36

SNANLCV(d)		ALL
Any ET	Yes	41

SNANLCV(d)		ALL
Frac ET(L)	0	10
Frac ET(L)	10	27
Frac ET(L)	20	1
Frac ET(L)	30	0
Frac ET(L)	40	0
Frac ET(L)	50	0
		38

Annexure III.45 : Nainital -- Tempos (Freight Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre
No.(Tempo,ALL)	204	204	204	204	204	204	204	204	204	204	204
AVG(Tempo,ALL)	36.40	53.18	44.79	52.47	220.33	248.70	234.52	8164.04	13398.22	10781.13	6.31
No.(Tempo,B)	31	31	31	31	31	31	31	31	31	31	31
AVG(Tempo,B)	26.26	41.45	33.86	41.45	219.78	269.50	244.64	6031.00	11231.27	8631.14	6.90
No.(Tempo,C)	85	85	85	85	85	85	85	85	85	85	85
AVG(Tempo,C)	35.89	52.22	44.05	51.62	225.01	247.91	236.46	8307.69	13326.08	10816.88	6.14
No.(Tempo,D)	88	88	88	88	88	88	88	88	88	88	88
AVG(Tempo,D)	40.45	58.25	49.35	57.17	216.00	242.13	229.07	8776.70	14231.26	11503.98	6.26

SWANTEMP		ALL
Age(L)	0	41
Age(L)	1	51
Age(L)	2	43
Age(L)	3	38
Age(L)	5	20
Age(L)	7	8
Age(L)	10	2
Age(L)	15	0
Age(L)	20	0
		203

SWANTEMP		ALL
dist(L)	0	0
dist(L)	50	17
dist(L)	100	58
dist(L)	200	69
dist(L)	300	36
dist(L)	400	20
dist(L)	500	3
dist(L)	600	0
		203

SWANTEMP		ALL
milage	2.5	0
milage	3	2
milage	4	37
milage	5	31
milage	6	63
milage	8	55
milage	10	16
milage	>10	0
		204

Annexure III.45 contd.

SNANTEMP		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	0
Month/max	jun	83
Month/max	july	98
Month/max	aug	4
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		185

SNANTEMP		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	62
Month/min	july	104
Month/min	aug	9
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		175

SNANTEMP		ALL
Any ET	Yes	204

SNANTEMP		ALL
Frac ET(L)	0	131
Frac ET(L)	10	51
Frac ET(L)	20	0
Frac ET(L)	30	0
Frac ET(L)	40	0
Frac ET(L)	50	0
		182

Annexure III.46 : Nainital -- Three-Wheelers (Freight Transport)

	Fuel use per day(lit)-------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre
No.(d3w,ALL)	109	109	109	109	109	109	109	109	109	109	109
AVG(d3w,ALL)	3.69	7.24	5.46	6.91	224.21	292.89	258.55	821.67	2111.44	1466.56	18.99
No.(d3w,B)	23	23	23	23	23	23	23	23	23	23	23
AVG(d3w,B)	2.61	5.22	3.91	5.22	240.69	317.39	279.04	628.17	1657.49	1142.83	20.00
No.(d3w,C)	51	51	51	51	51	51	51	51	51	51	51
AVG(d3w,C)	3.63	7.25	5.43	6.75	227.51	289.14	258.32	830.04	2109.93	1469.99	18.37
No.(d3w,D)	35	35	35	35	35	35	35	35	35	35	35
AVG(d3w,D)	4.49	8.56	6.52	8.26	208.57	282.27	245.42	936.64	2411.96	1674.30	19.23
No.(d3w,BAJAJ)	53	53	53	53	53	53	53	53	53	53	53
AVG(d3w,BAJAJ)	3.67	7.11	5.39	6.56	226.50	301.18	263.84	851.70	2180.05	1515.88	18.87
No.(d/3w,OTHERS)	56	56	56	56	56	56	56	56	56	56	56
AVG(d/3w,OTHERS)	3.71	7.36	5.53	7.24	222.04	285.05	253.54	793.26	2046.51	1419.89	19.11

SNAN3W		OTHERS	BAJAJ	ALL
Age(L)	0	18	10	28
Age(L)	1	15	11	26
Age(L)	2	5	22	27
Age(L)	3	7	5	12
Age(L)	5	7	5	12
Age(L)	7	4	0	4
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		56	53	109

SNAN3W		ALL
dist(L)	0	3
dist(L)	50	74
dist(L)	100	29
dist(L)	200	3
dist(L)	300	0
		109

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Annexure III.46 contd.

SNAN3W		OTHERS	BAJAJ	ALL
milage	10	2	3	5
milage	12	0	0	0
milage	13	0	0	0
milage	14	0	0	0
milage	16	4	6	10
milage	18	2	0	2
milage	20	48	44	92
milage	>20	0	0	0
		56	53	109

SNAN3W		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	0
Month/max	apr	0
Month/max	may	0
Month/max	jun	34
Month/max	july	62
Month/max	aug	6
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		102

SNAN3W		ALL
Any ET	Yes	109

SNAN3W		ALL
Frac ET(L)	0	2
Frac ET(L)	10	1
Frac ET(L)	20	0
Frac ET(L)	30	0
Frac ET(L)	40	0
Frac ET(L)	50	0
		3

SNAN3W		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	46
Month/min	july	47
Month/min	aug	4
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		97

Annexure III.47 : Other UP -- Trucks (Freight Transport)

	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(TRUK,ALL)	1089	1089	1089	1089	1089	1089	1089	1089	1089	1089	1089
AVG(TRUK,ALL)	157.55	200.04	178.80	177.87	167.47	349.73	258.60	27039.53	69867.97	48453.75	2.50
NO.(TRUK,B)	256	256	256	256	256	256	256	256	256	256	256
AVG(TRUK,B)	159.35	199.52	179.43	181.84	198.66	339.34	269.00	32432.10	67555.38	49993.74	2.71
NO.(TRUK,C)	140	140	140	140	140	140	140	140	140	140	140
AVG(TRUK,C)	122.57	165.31	145.49	146.87	117.92	340.39	231.33	14797.76	59399.16	37569.63	2.27
NO.(TRUK,D)	547	547	547	547	547	547	547	547	547	547	547
AVG(TRUK,D)	166.06	208.39	187.22	185.30	170.38	348.76	259.57	28700.69	72688.02	50694.36	2.51
NO.(TRUK,E)	146	146	146	146	146	146	146	146	146	146	146
AVG(TRUK,E)	142.85	187.86	165.36	160.82	135.00	360.56	247.78	19396.95	67751.86	43574.40	2.29
NO.(TRUK,LEYLAND)	127	127	127	127	127	127	127	127	127	127	127
AVG(TRUK,LEYLAND)	154.04	197.08	175.56	177.99	164.78	350.63	257.70	26121.70	68939.18	47530.44	2.38
NO.(TRUK,TATA)	962	962	962	962	962	962	962	962	962	962	962
AVG(TRUK,TATA)	158.01	200.43	179.22	177.85	167.83	349.61	258.72	27160.69	69990.59	48575.64	2.51

SUPPTRUK		TATA	LEYLAND	ALL
Age(L)	0	13	0	13
Age(L)	1	23	3	26
Age(L)	2	142	17	159
Age(L)	3	140	27	167
Age(L)	5	148	21	169
Age(L)	7	189	14	203
Age(L)	10	159	25	184
Age(L)	15	113	16	129
Age(L)	20	0	0	0
		927	123	1050

Annexure III.47 contd.

SUPPTRUK		ALL
dist(L)	0	0
dist(L)	50	0
dist(L)	100	93
dist(L)	200	108
dist(L)	300	149
dist(L)	400	385
dist(L)	500	195
dist(L)	600	85
dist(L)	700	52
dist(L)	800	19
dist(L)	900	0
dist(L)	1000	0
		1086

SUPPTRUK		TATA	LEYLAND	ALL
milage	1	0	0	0
milage	2	347	49	396
milage	2.5	255	55	310
milage	3	297	21	318
milage	3.5	54	0	54
milage	4	7	2	9
milage	6	1	0	1
milage	8	0	0	0
milage	>10	1	0	1
		962	127	1089

SUPPTRUK		ALL
Month/max	jan	1
Month/max	feb	5
Month/max	mar	5
Month/max	apr	2
Month/max	may	0
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		13

Annexure III.47 contd.

SUPPTRUK		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	1
Month/min	july	7
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		8

SUPPTRUK		ALL
Any ET	Yes	1089

SUPPTRUK		ALL
Frac ET(L)	0	390
Frac ET(L)	10	119
Frac ET(L)	20	30
Frac ET(L)	30	41
Frac ET(L)	40	95
Frac ET(L)	50	0
		675

Annexure III.48 : Other UP -- LCVs (Freight Transport)

All HSD	Fuel use per day(lit)-------------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(LCV,ALL)	176	176	176	176	176	176	176	176	176	176	176
AVG(LCV,ALL)	75.09	94.92	85.01	88.30	263.61	337.62	300.61	19228.16	31666.83	25447.50	5.32
NO.(LCV,B)	89	89	89	89	89	89	89	89	89	89	89
AVG(LCV,B)	80.62	100.44	90.53	94.06	254.95	332.05	293.50	20328.27	33196.54	26762.41	5.50
NO.(LCV,C)	11	11	11	11	11	11	11	11	11	11	11
AVG(LCV,C)	52.06	70.61	61.34	62.32	280.20	348.96	314.58	14380.43	24522.86	19451.65	5.64
NO.(LCV,D)	65	65	65	65	65	65	65	65	65	65	65
AVG(LCV,D)	76.77	97.23	87.00	90.92	268.29	340.35	304.32	19830.19	32594.87	26212.53	5.42
NO.(LCV,E)	11	11	11	11	11	11	11	11	11	11	11
AVG(LCV,E)	43.44	60.95	52.20	52.27	289.42	355.14	322.28	11617.59	20950.15	16283.87	6.23
NO.(LCV,canter)	38	38	38	38	38	38	38	38	38	38	38
AVG(LCV,canter)	66.62	82.42	74.52	76.32	261.48	336.26	298.87	17400.68	27709.64	22555.16	6.47
NO.(LCV,dcm)	14	14	14	14	14	14	14	14	14	14	14
AVG(LCV,DCM)	53.70	77.04	65.37	65.36	304.17	365.00	334.58	16333.44	28119.90	22226.67	4.50
NO.(LCV,FORD)	24	24	24	24	24	24	24	24	24	24	24
AVG(LCV,FORD)	13.69	27.39	20.54	19.44	281.35	349.79	315.57	3962.51	9726.32	6844.42	6.75
NO.(LCV,NISSAN)	62	62	62	62	62	62	62	62	62	62	62
AVG(LCV,NISSAN)	114.07	140.03	127.05	133.87	245.95	326.16	286.06	27928.65	45576.93	36752.79	4.13
NO.(LCV,SWARAJ)	35	35	35	35	35	35	35	35	35	35	35
AVG(LCV,SWARAJ)	66.42	81.88	74.15	76.86	265.35	338.89	302.12	17277.87	27510.92	22394.39	6.57
NO.(LCV,OTHERS)	3	3	3	3	3	3	3	3	3	3	3
AVG(LCV,OTHERS)	68.89	96.67	82.78	90.00	304.17	351.48	327.82	20953.70	34877.78	27915.74	5.17

SUPPLCV		OTHERS	SWARAJ	NISSAN	FORD	DCM	CANTER	ALL
Age(L)	0	0	4	2	0	0	1	7
Age(L)	1	0	8	9	0	0	0	17
Age(L)	2	0	9	17	8	1	14	49
Age(L)	3	0	9	19	0	1	19	48
Age(L)	5	0	4	11	3	5	3	26
Age(L)	7	2	1	4	4	0	0	11
Age(L)	10	1	0	0	9	7	1	18
Age(L)	15	0	0	0	0	0	0	0
Age(L)	20	0	0	0	0	0	0	0
		3	35	62	24	14	38	176

Annexure III.48 contd.

SUPPLCV		ALL
dist(L)	0	0
dist(L)	50	5
dist(L)	100	27
dist(L)	200	12
dist(L)	300	30
dist(L)	400	35
dist(L)	500	50
dist(L)	600	17
dist(L)	700	0
dist(L)	800	0
		176

SUPPLCV		OTHERS	SWARAJ	NISSAN	FORD	DCM	CANTER	ALL
milage	2.5	1	0	0	0	0	0	1
milage	3	1	0	19	0	0	0	20
milage	3.5	0	0	12	0	0	0	12
milage	4	0	0	10	1	12	1	24
milage	4.5	0	0	1	0	0	0	1
milage	5	0	2	8	0	0	1	11
milage	5.5	0	1	1	0	0	2	4
milage	6	0	13	10	8	0	17	48
milage	8	0	19	1	15	2	16	53
milage	10	1	0	0	0	0	0	1
milage	12	0	0	0	0	0	1	1
milage	>12	0	0	0	0	0	0	0
		3	35	62	24	14	38	176

Annexure III.48 contd.

SUPPLCV		ALL
Month/max	jan	0
Month/max	feb	0
Month/max	mar	2
Month/max	apr	11
Month/max	may	0
Month/max	jun	0
Month/max	july	0
Month/max	aug	0
Month/max	sep	0
Month/max	oct	0
Month/max	nov	0
Month/max	dec	0
		13

SUPPLCV		ALL
Month/min	jan	0
Month/min	feb	0
Month/min	mar	0
Month/min	apr	0
Month/min	may	1
Month/min	jun	0
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		1

SUPPLCV		ALL
Any ET	Yes	176

SUPPLCV		ALL
Frac ET(L)	0	15
Frac ET(L)	10	34
Frac ET(L)	20	13
Frac ET(L)	30	6
Frac ET(L)	40	0
Frac ET(L)	50	0
		68

Annexure III.49 : Other UP -- Tempos (Freight Transport)

All HSD	Fuel use per day(lit)				Number of days of use per year			annual fuel con(litres)			fuel cons. (km/litre)
	low	high	ave	given	low	high	ave	low	high	ave	
NO.(TEMPO,ALL)	87	87	87	87	87	87	87	87	87	87	87
AVG(TEMPO,ALL)	35.78	48.93	42.35	43.05	243.33	324.44	283.89	8706.17	15874.05	12290.11	8.16
NO.(TEMPO,B)	50	50	50	50	50	50	50	50	50	50	50
AVG(TEMPO,B)	39.16	52.16	45.66	46.72	243.33	324.44	283.89	9530.04	16923.41	13226.73	8.07
NO.(TEMPO,C)	4	4	4	4	4	4	4	4	4	4	4
AVG(TEMPO,C)	14.44	23.60	19.02	17.75	243.33	324.44	283.89	3513.04	7655.75	5584.39	9.63
NO.(TEMPO,D)	29	29	29	29	29	29	29	29	29	29	29
AVG(TEMPO,D)	32.75	46.76	39.75	39.77	243.33	324.44	283.89	7968.20	15171.65	11569.92	8.09
NO.(TEMPO,E)	4	4	4	4	4	4	4	4	4	4	4
AVG(TEMPO,E)	36.79	49.52	43.15	46.25	243.33	324.44	283.89	8951.19	16067.72	12509.46	8.25
NO.(TEM,MATADOR)	44	44	44	44	44	44	44	44	44	44	44
AVG(TEM,MATADOR)	22.73	33.13	27.93	28.08	243.33	324.44	283.89	5530.53	10749.22	8139.88	9.57
NO.(TEMPO,OTHER)	43	43	43	43	43	43	43	43	43	43	43
AVG(TEMPO,OTHER)	49.13	65.09	57.11	58.37	243.33	324.44	283.89	11955.66	21118.06	16536.86	6.71

SUPPTEMP		OTHERS	MATADOR	ALL
Age(L)	0	3	0	3
Age(L)	1	7	0	7
Age(L)	2	18	4	22
Age(L)	3	12	12	24
Age(L)	5	3	12	15
Age(L)	7	0	11	11
Age(L)	10	0	4	4
Age(L)	15	0	1	1
Age(L)	20	0	0	0
		43	44	87

Annexure III.49 contd.

SUPPTEMP		ALL
dist(L)	0	0
dist(L)	50	1
dist(L)	100	9
dist(L)	200	26
dist(L)	300	35
dist(L)	400	11
dist(L)	500	4
dist(L)	600	1
dist(L)	700	0
dist(L)	800	0
		87

SUPPTEMP		OTHERS	MATADOR	ALL
milage	4	0	0	0
milage	5	3	0	3
milage	6	14	0	14
milage	7	17	0	17
milage	8	9	6	15
milage	9	0	4	4
milage	10	0	34	34
milage	12	0	0	0
milage	14	0	0	0
milage	16	0	0	0
milage	>16	0	0	0
		43	44	87

SUPPTEMP		ALL
Any ET	Yes	87

SUPPTEMP		ALL
Frac ET(L)	0.1	0
Frac ET(L)	10	11
Frac ET(L)	20	9
Frac ET(L)	30	6
Frac ET(L)	40	1
Frac ET(L)	50	0
		27

Annexure III.50 : Other UP -- Jeeps (Freight Transport)

All Mahindra All HSD	Fuel use per day(lit)-----------				Number of days of use per year-------------			annual fuel con(litres)----			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(JEEP,ALL)	66	66	66	66	66	66	66	66	66	66	66
AVG(JEEP,ALL)	21.52	31.96	26.74	27.27	246.81	326.76	286.79	5292.51	10434.00	7863.26	9.88
NO.(JEEP,B)	23	23	23	23	23	23	23	23	23	23	23
AVG(JEEP,B)	21.78	31.81	26.80	26.93	245.00	325.55	285.27	5335.91	10354.27	7845.09	9.98
NO.(JEEP,C)	8	8	8	8	8	8	8	8	8	8	8
AVG(JEEP,C)	21.94	32.22	27.08	27.94	245.07	325.60	285.34	5380.37	10493.27	7936.82	9.75
NO.(JEEP,D)	35	35	35	35	35	35	35	35	35	35	35
AVG(JEEP,D)	21.24	32.01	26.63	27.33	248.40	327.82	288.11	5243.91	10472.85	7858.38	9.84

SUPPJEEP		ALL (d & MAHIN)
Age(L)	0	0
Age(L)	1	1
Age(L)	2	5
Age(L)	3	8
Age(L)	5	18
Age(L)	7	18
Age(L)	10	14
Age(L)	15	2
Age(L)	20	0
		66

SUPPJEEP		ALL
dist(L)	0	0
dist(L)	50	0
dist(L)	100	5
dist(L)	200	51
dist(L)	300	8
dist(L)	400	1
dist(L)	500	1
dist(L)	600	0
		66

SUPPJEEP		ALL
Any ET	Yes	66

SUPPJEEP		ALL
Frac ET(L)	0	2
Frac ET(L)	10	4
Frac ET(L)	20	12
Frac ET(L)	30	7
Frac ET(L)	40	1
Frac ET(L)	50	0

Note: No information on month of max & min use.

SUPPJEEP		ALL
milage	7	0
milage	8	2
milage	10	64
milage	>10	0
		66

Annexure III.51 : Other UP -- Three Wheelers (Freight Transport)

	Fuel use per day(lit)*				Number of days of use per year			annual fuel con(litres)			fuel cons.
	low	high	ave	given	low	high	ave	low	high	ave	(km/litre)
NO.(d3W,ALL)	10	10	10	10	10	10	10	10	10	10	10
AVG(d3W,ALL)	20.61	27.06	23.83	23.80	283.38	351.14	317.26	5840.52	9500.88	7670.70	15.20
NO.(d3W,B)	8	8	8	8	8	8	8	8	8	8	8
AVG(d3W,B)	20.63	27.01	23.82	24.13	283.38	351.14	317.26	5845.82	9485.53	7665.67	15.25
NO.(d3W,C)	1	1	1	1	1	1	1	1	1	1	1
AVG(d3W,C)	12.50	18.75	15.63	15.00	283.38	351.14	317.26	3542.19	6583.86	5063.03	16.00
NO.(d3W,D)	1	1	1	1	1	1	1	1	1	1	1
AVG(d3W,D)	28.57	35.71	32.14	30.00	283.38	351.14	317.26	8096.44	12540.69	10318.57	14.00
NO.(d3W,LAMBR)	7	7	7	7	7	7	7	7	7	7	7
AVG(d3W,LAMBR)	22.42	29.13	25.77	25.71	283.38	351.14	317.26	6353.23	10228.50	8290.86	15.00
NO.(d3W,OTH)	3	3	3	3	3	3	3	3	3	3	3
AVG(d3W,OTH)	16.39	22.22	19.31	19.33	283.38	351.14	317.26	4644.21	7803.09	6223.65	15.67
SUPP3W(p)											
NO.(p3W,ALL)	99	99	99	99	99	99	99	99	99	99	99
AVG(p3W,ALL)	6.95	12.34	9.65	8.89	283.38	351.14	317.26	1966.15	4350.49	3158.32	18.53
NO.(p3W,B)	30	30	30	30	30	30	30	30	30	30	30
AVG(p3W,B)	4.85	8.80	6.82	6.95	260.79	336.08	298.43	1264.34	2969.38	2116.86	20.45
NO.(p3W,C)	16	16	16	16	16	16	16	16	16	16	16
AVG(p3W,C)	4.84	9.68	7.26	5.91	290.16	355.66	322.91	1427.10	3473.65	2450.38	18.47
NO.(p3W,D)	43	43	43	43	43	43	43	43	43	43	43
AVG(p3W,D)	9.53	16.08	12.80	12.02	291.77	356.74	324.26	2718.37	5703.53	4210.95	17.35
NO.(p3W,E)	10	10	10	10	10	10	10	10	10	10	10
AVG(p3W,E)	5.59	11.17	8.38	6.05	304.17	365.00	334.58	1699.47	4078.73	2889.10	17.90
NO.(p3W,BAJAJ)	82	82	82	82	82	82	82	82	82	82	82
AVG(p3W,BAJAJ)	4.87	10.12	7.49	6.38	287.28	353.74	320.51	1425.49	3619.74	2522.62	19.02
NO.(p3W,LAMBR)	8	8	8	8	8	8	8	8	8	8	8
AVG(p3W,LAMBR)	6.05	10.43	8.24	8.99	258.35	334.45	296.40	1537.02	3470.85	2503.94	19.13
NO.(p3W,VESPA)	9	9	9	9	9	9	9	9	9	9	9
AVG(p3W,VESPA)	26.78	34.35	30.57	31.67	270.03	342.24	306.13	7273.54	11790.37	9531.95	13.44

Note : p3W = 3-wheelers using petrol (MS)
d3W = 3-wheelers using diesel (HSD)

Annexure III.31 contd.

SUPP3W(d)		OTHERS	LAMBERETT	ALL
Age(L)	0	0	0	0
Age(L)	1	0	0	0
Age(L)	2	1	2	3
Age(L)	3	0	4	4
Age(L)	5	2	1	3
Age(L)	7	0	0	0
Age(L)	10	0	0	0
Age(L)	15	0	0	0
Age(L)	20	0	0	0
		3	7	10

SUPP3W(d)		ALL
dist(L)	0	0
dist(L)	50	1
dist(L)	100	0
dist(L)	200	4
dist(L)	300	0
dist(L)	400	4
dist(L)	500	1
dist(L)	600	0
		10

SUPP3W(d)		OTHERS	LAMBERETT	ALL
milage	6	0	0	0
milage	8	0	0	0
milage	10	0	0	0
milage	12	1	0	1
milage	14	0	2	2
milage	16	1	4	5
milage	18	0	1	1
milage	20	1	0	1
milage	22	0	0	0
milage	24	0	0	0
milage	>26	0	0	0
		3	7	10

SUPP3W(d)		ALL
Any ET	Yes	10

Note: For d3W -- No information on month of
max & min use; and fraction
of distance travelled empty.

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Annexure III.51 contd.

SUPP3W(p)		VESPA	LAMBERETTBAJAJ		ALL
Age(L)	0	0	0	0	0
Age(L)	1	0	0	0	0
Age(L)	2	3	2	3	8
Age(L)	3	5	0	11	16
Age(L)	5	1	2	23	26
Age(L)	7	0	1	16	17
Age(L)	10	0	1	27	28
Age(L)	15	0	2	2	4
Age(L)	20	0	0	0	0
		9	8	82	99

SUPP3W(p)		ALL
dist(L)	0	0
dist(L)	50	19
dist(L)	100	71
dist(L)	200	0
dist(L)	300	3
dist(L)	400	5
dist(L)	500	1
dist(L)	600	0
		99

SUPP3W(p)		VESPA	LAMBERETTBAJAJ		ALL
milage	6	0	0	0	0
milage	8	0	0	0	0
milage	10	1	0	0	1
milage	12	2	0	0	2
milage	14	2	0	0	2
milage	16	4	1	2	7
milage	18	0	2	46	48
milage	20	0	4	17	21
milage	22	0	1	10	11
milage	24	0	0	1	1
milage	>26	0	0	6	6
		9	8	82	99

SUPP3W(p)		ALL
Month/min	jan	0
Month/min	feb	6
Month/min	mar	0
Month/min	apr	0
Month/min	may	0
Month/min	jun	0
Month/min	july	0
Month/min	aug	0
Month/min	sep	0
Month/min	oct	0
Month/min	nov	0
Month/min	dec	0
		6

SUPP3W(p)		ALL
Any ET	Yes	99

SUPP3W(p)		ALL
Frac ET(L)	0	12
Frac ET(L)	10	11
Frac ET(L)	20	8
Frac ET(L)	30	5
Frac ET(L)	40	2
Frac ET(L)	50	0
		38

Note: For p3W -- No information on month of max use.

Annexure VI.1 : BAU Scenario -- Projections of Registrations of Two Wheelers

	prod India mb (000)	prod India sc (000)	prod India md (000)	regist India mb (000)	regist India sc (000)	regist India md (000)	# scrap India mb (000)	# scrap India sc (000)	# scrap India md (000)	regist North mb/sc/md (000)	regist North mb (000)	regist North sc (000)	regist North md (000)
1989				2658.47	4384.06	2459.92				3193.6	741.30	1893.59	558.71
1990	510	765	425	3022.26	4907.94	2749.62	146.22	241.12	135.30	3582.13	861.35	2066.47	654.31
1991	570	855	475	3426.03	5493.00	3073.39	166.22	269.94	151.23	4015.29	994.60	2259.54	761.15
1992	630	945	525	3867.60	6135.89	3429.35	188.43	302.12	169.04	4490.63	1140.31	2471.69	878.62
1993	690	1035	575	4344.88	6833.41	3815.74	212.72	337.47	188.61	5005.82	1297.82	2701.88	1006.13
1994	750	1125	625	4855.91	7582.57	4230.87	238.97	375.84	209.87	5558.68	1466.46	2949.10	1143.12
1995	810	1215	675	5398.84	8380.53	4673.18	267.08	417.04	232.70	6147.13	1645.62	3212.43	1289.08
1996	870	1305	725	5971.90	9224.60	5141.15	296.94	460.93	257.02	6769.22	1834.73	3490.97	1443.51
1997	930	1395	775	6573.45	10112.25	5633.39	328.45	507.35	282.76	7423.09	2033.24	3783.89	1605.95
1998	990	1485	825	7201.91	11041.08	6148.55	361.54	556.17	309.84	8107.00	2240.64	4090.41	1775.96
1999	1050	1575	875	7855.80	12008.82	6685.38	396.10	607.26	338.17	8819.29	2456.42	4409.76	1953.11
2000	1110	1665	925	8533.73	13013.33	7242.69	432.07	660.48	367.70	9558.41	2680.14	4741.25	2137.02
2001	1170	1755	975	9234.38	14052.60	7819.34	469.36	715.73	398.35	10322.88	2911.35	5084.21	2327.32
2002	1230	1845	1025	9956.49	15124.71	8414.27	507.89	772.89	430.06	11111.30	3149.65	5438.01	2523.64
2003	1290	1935	1075	10698.88	16227.85	9026.49	547.61	831.86	462.79	11922.35	3394.64	5802.04	2725.68
2004	1350	2025	1125	11460.44	17360.32	9655.03	588.44	892.53	496.46	12754.80	3645.95	6175.76	2933.09
2005	1410	2115	1175	12240.12	18520.50	10299.01	630.32	954.82	531.03	13607.47	3903.24	6558.62	3145.61

Note: mb: motor-bike
sc: scooter
md: moped

Annexure VI.2 : BAU Scenario -- Projections of Registrations of Three Wheelers

	prod India 3 w (000)	regist India 3 w (000)	# scrap India 3 w (000)	regist North 3 w (000)
1989		510.6		
1990	85	565.99	29.61	113.20
1991	100	633.16	32.83	126.63
1992	115	711.43	36.72	142.29
1993	130	800.17	41.26	160.03
1994	150	903.76	46.41	180.75
1995	170	1021.34	52.42	204.27
1996	190	1152.11	59.24	230.42
1997	210	1295.28	66.82	259.06
1998	230	1450.16	75.13	290.03
1999	257	1623.05	84.11	324.61
2000	284	1812.91	94.14	362.58
2001	311	2018.76	105.15	403.75
2002	338	2239.67	117.09	447.93
2003	365	2474.77	129.90	494.95
2004	401	2732.24	143.54	546.45
2005	437	3010.77	158.47	602.15

Annexure VI.3 : BAU Scenario -- Projections of Registrations of Cars and Jeeps

					<--after scrap-->								
	% regis North % c/j/t	prod India car (000)	prod India jeep (000)	regist India c/j/t (000)	regist India car (000)	regist India jeep (000)	#scrap India car (000)	#scrap India jeep (000)	regist India c/j/t (000)	regist North c/j/t (000)	regist North % jeeps	regist North jeeps (000)	regist North cars (000)
1972	22.76			737.89					737.89	167.92			
1980	20.12			1004.51					1004.51	202.15			
1981	20.30			1039.88					1039.88	211.12			
1982	20.71			1066.50					1066.50	220.87			
1985	23.69			1540.15					1540.15	364.79			
1986	24.56			1709.86					1709.86	419.98			
1987	25.24			1895.10					1895.10	478.39			
1988	26.66			2054.75					2054.75	547.70			
1989	27.97			2182.80	1835.70	347.10			2182.80	610.50			
1990	28.30	180	39		1938.60	368.75	77.10	17.36	2307.35	652.87	28.44	104.86	548.01
1991	29.18	200	46		2057.18	396.31	81.42	18.44	2453.49	715.90	28.73	113.84	602.05
1992	30.06	220	53		2190.78	429.49	86.40	19.82	2620.27	787.71	29.02	124.62	663.09
1993	30.95	240	60		2338.77	468.02	92.01	21.47	2806.78	868.58	29.31	137.16	731.43
1994	31.83	260	70		2500.54	514.62	98.23	23.40	3015.15	959.71	29.60	152.30	807.40
1995	32.71	280	80		2675.51	568.89	105.02	25.73	3244.40	1061.34	29.89	170.01	891.33
1996	31.72	300	90		2863.14	630.44	112.37	28.44	3493.58	1108.00	30.18	190.24	917.76
1997	32.31	320	100		3062.89	698.92	120.25	31.52	3761.81	1215.55	30.47	212.93	1002.63
1998	32.91	340	110		3274.25	773.97	128.64	34.95	4048.22	1332.30	30.75	238.03	1094.26
1999	33.51	360	125		3496.73	860.27	137.52	38.70	4357.01	1459.96	31.04	267.07	1192.89
2000	34.11	380	140		3729.87	957.26	146.86	43.01	4687.13	1598.60	31.33	299.95	1298.65
2001	34.70	400	155		3973.21	1064.40	156.65	47.86	5037.61	1748.25	31.62	336.61	1411.64
2002	35.30	420	170		4226.34	1181.18	166.87	53.22	5407.52	1908.94	31.91	376.96	1531.98
2003	35.90	440	185		4488.83	1307.12	177.51	59.06	5795.95	2080.71	32.20	420.94	1659.77
2004	36.50	460	207		4760.30	1448.76	188.53	65.36	6209.06	2266.13	32.49	470.76	1795.37
2005	37.09	480	229		5040.37	1605.33	199.93	72.44	6645.69	2465.21	32.78	526.28	1938.93

Note: c: car
j: jeep
t: taxi

Annexure VI.4 : BAU Scenario -- MS Sales Forecast (kilolitres)

	ms cons HAR mb	ms cons HAR sc	ms cons HAR md	ms cons HAR 3 w	ms cons HAR cars	ms cons HAR jeeps	ms cons HAR all veh
1990/91	22786	51945	9685	12965	36229	2898	136508
1991/92	25609	56133	11033	14222	39352	3132	149481
1992/93	28571	60615	12470	15617	42809	3403	163484
1993/94	31647	65359	13982	17220	46603	3730	178541
1994/95	34814	70330	15562	18998	50738	4110	194552
1995/96	38049	75501	17198	20922	51522	4540	207732
1996/97	41334	80843	18884	22964	55509	5016	224550
1997/98	44652	86331	20610	25099	59747	5536	241975
1998/99	47987	91942	22370	27425	64234	6131	260088
1999/00	51325	97653	24156	29906	68964	6798	278801
2000/01	54653	103446	25964	32511	73930	7530	298034
2001/02	57960	109302	27786	35212	79126	8325	317711
2002/03	61237	115203	29619	37985	84543	9177	337764
2003/04	64474	121135	31457	40941	90189	10131	358326
2004/05	67662	127083	33295	44044	96057	11180	379322

	ms cons HP mb	ms cons HP sc	ms cons HP md	ms cons HP 3 w	ms cons HP cars	ms cons HP jeeps	ms cons HP all veh
1990/91	2583	8759	845	670	6510	4644	24012
1991/92	2887	9539	976	753	7041	5038	26233
1992/93	3203	10381	1117	847	7627	5495	28669
1993/94	3528	11280	1269	957	8267	6047	31348
1994/95	3859	12233	1431	1081	8962	6690	34256
1995/96	4194	13235	1603	1220	9062	7418	36731
1996/97	4530	14282	1783	1371	9721	8229	39916
1997/98	4866	15370	1972	1535	10418	9116	43278
1998/99	5200	16497	2168	1718	11153	10137	46873
1999/00	5531	17658	2373	1919	11923	11282	50686
2000/01	5857	18851	2584	2137	12726	12548	54703
2001/02	6176	20074	2802	2371	13562	13926	58911
2002/03	6489	21323	3026	2620	14429	15411	63297
2003/04	6793	22595	3257	2893	15327	17080	67944
2004/05	7089	23890	3493	3187	16254	18923	72836

Annexure VI.4 contd.

	ms cons JK mb	ms cons JK sc	ms cons JK md	ms cons JK 3 w	ms cons JK cars	ms cons JK jeeps	ms cons JK all veh
1990/91	3414	11578	1117	1798	19259	4338	41504
1991/92	3816	12608	1289	2020	20829	4706	45269
1992/93	4233	13722	1477	2272	22562	5133	49399
1993/94	4663	14911	1678	2566	24456	5649	53923
1994/95	5101	16170	1892	2900	26512	6249	58824
1995/96	5543	17494	2118	3272	26806	6930	62163
1996/97	5988	18878	2357	3678	28757	7687	67345
1997/98	6432	20317	2606	4118	30820	8516	72809
1998/99	6874	21806	2866	4609	32992	9469	78616
1999/00	7311	23341	3136	5148	35270	10539	84746
2000/01	7741	24918	3416	5733	37648	11721	91177
2001/02	8164	26534	3704	6360	40121	13009	97891
2002/03	8577	28185	4000	7028	42684	14396	104870
2003/04	8979	29867	4305	7759	45340	15955	112205
2004/05	9371	31578	4616	8550	48083	17677	119874

	ms cons PUN mb	ms cons PUN sc	ms cons PUN md	ms cons PUN 3 w	ms cons PUN cars	ms cons PUN jeeps	ms cons PUN all veh
1990/91	51026	112815	19292	18790	81475	3796	287195
1991/92	57349	121910	21979	20611	88497	4102	314448
1992/93	63983	131646	24840	22632	96271	4457	343828
1993/94	70871	141947	27853	24955	104805	4885	375317
1994/95	77961	152745	31000	27533	114102	5383	408725
1995/96	85207	163975	34260	30320	115865	5946	435573
1996/97	92563	175576	37617	33279	124833	6570	470440
1997/98	99993	187495	41056	36374	134363	7251	506533
1998/99	107462	199680	44562	39744	144453	8031	543932
1999/00	114936	212085	48121	43340	155090	8904	582476
2000/01	122390	224666	51721	47115	166258	9863	622014
2001/02	129796	237383	55352	51031	177943	10904	662409
2002/03	137134	250200	59002	55049	190126	12020	703531
2003/04	144382	263083	62663	59333	202823	13270	745554
2004/05	151523	276002	66325	63830	216018	14645	788343

Annexure VI.4 contd.

	ms cons RAJ mb	ms cons RAJ sc	ms cons RAJ md	ms cons RAJ 3 w	ms cons RAJ cars	ms cons RAJ jeeps	ms cons RAJ all veh
1990/91	37615	61068	17679	13045	24130	10129	163665
1991/92	41765	66600	20027	14631	26403	11088	180514
1992/93	46034	72582	22507	16426	28934	12203	198686
1993/94	50375	78984	25095	18519	31731	13551	218254
1994/95	54746	85776	27772	20890	34801	15127	239112
1995/96	59111	92932	30521	23522	35599	16926	258611
1996/97	63440	100425	33323	26397	38637	18945	281167
1997/98	67705	108232	36164	29500	41894	21179	304673
1998/99	71883	116329	39031	32957	45372	23762	329335
1999/00	75955	124696	41911	36745	49073	26688	355068
2000/01	79904	133311	44793	40844	52994	29949	381796
2001/02	83717	142157	47668	45231	57137	33540	409450
2002/03	87382	151215	50525	49888	61500	37453	437963
2003/04	90890	160468	53358	54978	66091	41885	467670
2004/05	94234	169901	56158	60473	70910	46825	498501

	ms cons CHD mb	ms cons CHD sc	ms cons CHD md	ms cons CHD 3 w	ms cons CHD cars	ms cons CHD jeeps	ms cons CHD all veh
1990/91	6816	12082	2037	1857	14583	440	37814
1991/92	7657	13114	2302	2076	15860	481	41489
1992/93	8539	14224	2580	2324	17274	529	45469
1993/94	9453	15405	2869	2612	18829	587	49755
1994/95	10394	16651	3166	2937	20525	655	54328
1995/96	11355	17954	3470	3297	20868	732	57677
1996/97	12330	19310	3779	3688	22512	819	62437
1997/98	13313	20713	4090	4109	24261	915	67400
1998/99	14301	22157	4402	4576	26115	1026	72577
1999/00	15288	23638	4714	5086	28073	1152	77952
2000/01	16272	25151	5025	5636	30132	1292	83509
2001/02	17249	26693	5333	6222	32290	1446	89233
2002/03	18215	28260	5638	6841	34544	1614	95112
2003/04	19169	29847	5938	7515	36897	1804	101170
2004/05	20108	31452	6233	8240	39347	2015	107396

Annexure VI.4 contd.

	ms cons DEL mb	ms cons DEL sc	ms cons DEL md	ms cons DEL 3 w	ms cons DEL cars	ms cons DEL jeeps	ms cons DEL all veh
1990/91	59124	104800	17671	50586	265327	8430	505937
1991/92	66418	113752	19964	56559	288556	9223	554473
1992/93	74067	123383	22376	63301	314295	10145	607566
1993/94	82002	133630	24883	71143	342583	11259	665500
1994/95	90164	144434	27464	80003	373441	12560	728067
1995/96	98497	155743	30101	89801	379685	14046	767873
1996/97	106952	167504	32777	100464	409583	15712	832992
1997/98	115483	179670	35477	111922	441403	17555	901509
1998/99	124050	192198	38187	124648	475143	19685	973911
1999/00	132617	205045	40895	138543	510767	22096	1049964
2000/01	141151	218174	43591	153514	548233	24781	1129445
2001/02	149623	231550	46264	169474	587495	27736	1212142
2002/03	158008	245137	48907	186341	628504	30954	1297850
2003/04	166281	258906	51510	204713	671313	34597	1387321
2004/05	174424	272827	54069	224471	715882	38655	1480329

	ms cons UP mb	ms cons UP sc	ms cons UP md	ms cons UP 3 w	ms cons UP cars	ms cons UP jeeps	ms cons UP all veh
1990/91	87650	171638	29741	38218	105640	18851	451737
1991/92	98606	186293	33742	42527	115029	20477	496674
1992/93	110121	202060	37977	47370	125445	22364	545336
1993/94	122097	218837	42411	52990	136906	24643	597885
1994/95	134445	236529	47012	59313	149427	27298	654024
1995/96	147086	255047	51749	66272	152120	30312	702586
1996/97	159946	274310	56596	73804	164311	33668	762634
1997/98	172958	294239	61528	81853	177307	37350	825235
1998/99	186064	314763	66523	90755	191113	41586	890804
1999/00	199209	335814	71561	100429	205716	46351	959080
2000/01	212343	357332	76624	110798	221104	51619	1029820
2001/02	225425	379257	81696	121790	237261	57367	1102796
2002/03	238413	401536	86761	133342	254172	63572	1177796
2003/04	251274	424118	91807	145872	271862	70555	1255487
2004/05	263975	446956	96821	159284	290319	78278	1335633

Annexure VI.4 contd

	ms cons UP/HILL mb	ms cons UP/HILL sc	ms cons UP/HILL md	ms cons UP/HILL 3 w	ms cons UP/HILL cars	ms cons UP/HILL jeeps	ms cons UP/HILL all veh
1990/91	7364	25644	2155	1106	11398	993	48660
1991/92	8230	27927	2487	1243	12327	1078	53292
1992/93	9130	30393	2848	1398	13352	1175	58297
1993/94	10056	33027	3236	1579	14474	1294	63665
1994/95	11000	35816	3649	1784	15690	1431	69371
1995/96	11955	38749	4087	2012	15864	1587	74254
1996/97	12914	41814	4546	2262	17019	1760	80317
1997/98	13873	45001	5028	2533	18240	1950	86624
1998/99	14825	48299	5529	2835	19525	2168	93182
1999/00	15767	51699	6050	3167	20873	2413	99970
2000/01	16696	55193	6589	3526	22281	2684	106968
2001/02	17607	58772	7144	3912	23744	2979	114158
2002/03	18498	62428	7716	4323	25261	3297	121523
2003/04	19366	66154	8304	4772	26833	3654	129083
2004/05	20210	69944	8905	5259	28456	4048	136822

	ms cons UP/WEST mb	ms cons UP/WEST sc	ms cons UP/WEST md	ms cons UP/WEST 3 w	ms cons UP/WEST cars	ms cons UP/WEST jeeps	ms cons UP/WEST all veh
1990/91	22138	50499	9430	7555	44518	3353	137494
1991/92	24881	54570	10743	8288	48355	3623	150461
1992/93	27760	58928	12142	9100	52603	3937	164469
1993/94	30748	63540	13615	10034	57266	4315	179518
1994/95	33824	68373	15152	11071	62346	4755	195522
1995/96	36968	73400	16746	12192	63309	5253	207867
1996/97	40160	78593	18387	13381	68209	5804	224534
1997/98	43383	83928	20068	14626	73417	6405	241826
1998/99	46623	89382	21782	15981	78930	7094	259792
1999/00	49867	94935	23521	17427	84742	7865	278356
2000/01	53100	100567	25281	18945	90844	8713	297450
2001/02	56314	106259	27056	20519	97229	9632	317008
2002/03	59497	111996	28840	22135	103886	10618	336972
2003/04	62642	117763	30629	23857	110823	11722	357437
2004/05	65740	123546	32419	25666	118033	12936	378340

Annexure VI.4 contd.

	ms cons UP/OTH mb	ms cons UP/OTH sc	ms cons UP/OTH md	ms cons UP/OTH 3 w	ms cons UP/OTH cars	ms cons UP/OTH jeeps	ms cons UP/OTH all veh
1990/91	58148	95494	18156	29557	49724	14504	265583
1991/92	65495	103795	20511	32997	54347	15776	292921
1992/93	73231	112739	22987	36873	59490	17252	322571
1993/94	81292	122271	25561	41377	65167	19035	354702
1994/95	89620	132340	28210	46458	71391	21112	389132
1995/96	98163	142899	30916	52068	72946	23472	420464
1996/97	106871	153903	33662	58161	79083	26104	457783
1997/98	115702	165310	36432	64694	85651	28996	496785
1998/99	124615	177081	39212	71939	92657	32324	537830
1999/00	133575	189180	41990	79836	100101	36072	580754
2000/01	142547	201572	44755	88327	107979	40222	625402
2001/02	151504	214226	47496	97359	116288	44756	671630
2002/03	160418	227111	50205	106884	125025	49658	719302
2003/04	169266	240200	52874	117242	134207	55180	768968
2004/05	178026	253466	55496	128359	143830	61294	820471

	ms cons NORTH R. mb	ms cons NORTH R. sc	ms cons NORTH R. md	ms cons NORTH R. 3 w	ms cons NORTH R. cars	ms cons NORTH R. jeeps	ms cons NORTH R. all veh
1990/91	271014	534684	98067	137929	553152	53526	1648372
1991/92	304106	579948	111312	153401	601567	58247	1808582
1992/93	338750	628612	125343	170789	655215	63728	1982437
1993/94	374636	680352	140040	190962	714181	70351	2170523
1994/95	411484	734869	155299	213655	778509	78073	2371888
1995/96	449042	791881	171020	238625	791527	86851	2528945
1996/97	487083	851128	187115	265645	853864	96646	2741481
1997/98	525403	912366	203503	294509	920213	107418	2963412
1998/99	563821	975370	220110	326432	990576	119827	3196136
1999/00	602172	1039930	236869	361116	1064876	133809	3438773
2000/01	640312	1105851	253719	398287	1143027	149304	3690499
2001/02	678111	1172949	270605	437691	1224935	166252	3950543
2002/03	715454	1241058	287478	479093	1310502	184597	4218183
2003/04	752242	1310020	304294	524004	1399840	205277	4495677
2004/05	788386	1379690	321010	572079	1492869	228199	4782233

Annexure VI.5 : LVP Scenario -- Projections of Registrations of Two Wheelers

	prod India mb (000)	prod India sc (000)	prod India md (000)	regist India mb (000)	regist India sc (000)	regist India md (000)	# scrap India mb (000)	# scrap India sc (000)	# scrap India md (000)	regist North mb/sc/md (000)	regist North mb (000)	regist North sc (000)	regist North md (000)	No.added North mb/sc/md (000)	regist India mb/sc/md (000)	%regist North mb/sc/md
9				2658.47	4384.06	2459.92				3193.6	741.30	1893.59	558.71		9502.45	33.61
90	510	765	425	3022.26	4907.94	2749.62	146.22	241.12	135.30	3582.13	861.35	2066.47	654.31	388.53	10679.81	33.54
91	570	855	475	3426.03	5493.00	3073.39	166.22	269.94	151.23	4015.29	994.60	2259.54	761.15	433.16	11992.42	33.48
92	630	945	525	3867.60	6135.89	3429.35	188.43	302.12	169.04	4490.63	1140.31	2471.69	878.62	475.34	13432.84	33.43
93	690	1035	575	4344.88	6833.41	3815.74	212.72	337.47	188.61	5005.82	1297.82	2701.88	1006.13	515.19	14994.83	33.38
94	750	1125	625	4855.91	7582.57	4230.87	238.97	375.84	209.87	5558.68	1466.46	2949.10	1143.12	552.86	16669.36	33.35
95	810	1215	675	5398.84	8380.53	4673.18	267.08	417.04	232.70	6147.13	1645.62	3212.43	1289.08	588.45	18452.54	33.31
96	840	1260	700	5941.90	9179.60	5116.15	296.94	460.93	257.02	6736.22	1824.83	3476.12	1435.26	589.09	20237.65	33.29
97	870	1305	725	6485.10	9979.73	5559.76	326.80	504.88	281.39	7325.91	2004.09	3740.16	1581.66	589.69	22024.38	33.26
98	900	1350	750	7028.42	10780.84	6003.98	356.68	548.88	305.79	7916.16	2183.38	4004.53	1728.25	590.25	23811.23	33.25
99	930	1395	775	7571.86	11582.89	6448.76	386.56	592.95	330.22	8506.95	2362.72	4269.21	1875.02	590.79	25603.50	33.23
0	960	1440	800	8115.40	12385.83	6894.08	416.45	637.06	354.68	9098.25	2542.09	4534.18	2021.98	591.30	27395.31	33.21
01	975	1463	813	8644.06	13167.11	7327.40	446.35	681.22	379.17	9673.52	2716.54	4792.00	2164.98	575.28	29138.57	33.20
02	990	1485	825	9158.63	13927.92	7749.39	475.42	724.19	403.01	10233.66	2886.35	5043.07	2304.23	560.13	30835.95	33.19
03	1005	1508	838	9659.91	14669.39	8160.68	503.72	766.04	426.22	10779.48	3051.78	5287.75	2439.96	545.83	32489.97	33.18
04	1020	1530	850	10148.61	15392.57	8561.84	531.29	806.82	448.84	11311.79	3213.05	5526.40	2572.34	532.31	34103.02	33.17
05	1035	1553	863	10625.44	16098.48	8953.44	558.17	846.59	470.90	11831.32	3370.40	5759.35	2701.57	519.53	35677.35	33.16

Annexure VI.6 : LVP Scenario -- Projections of Registrations of Three Wheelers

	prod India 3 w (000)	regist India 3 w (000)	# scrap India 3 w (000)	regist North 3 w (000)
1989		510.6		
1990	85	565.99	29.61	113.20
1991	100	633.16	32.83	126.63
1992	115	711.43	36.72	142.29
1993	130	800.17	41.26	160.03
1994	150	903.76	46.41	180.75
1995	170	1021.34	52.42	204.27
1996	180	1142.11	59.24	228.42
1997	190	1265.86	66.24	253.17
1998	200	1392.44	73.42	278.49
1999	210	1521.68	80.76	304.34
2000	220	1653.42	88.26	330.68
2001	225	1782.53	95.90	356.51
2002	230	1909.14	103.39	381.83
2003	235	2033.41	110.73	406.68
2004	240	2155.47	117.94	431.09
2005	245	2275.45	125.02	455.09

Annexure VI.7 : LVP Scenario -- Projections of Registrations of Cars and Jeeps

	% regis North % c/j/t	prod India car (000)	prod India jeep (000)	regist India c/j/t (000)	<--after scrap--> regist India car (000)	regist India jeep (000)	#scrap India car (000)	#scrap India jeep (000)	regist India c/j/t (000)	regist North c/j/t (000)	regist North % jeeps	regist North jeeps (000)	regist North cars (000)	regist North % cars
1972	22.76			737.89					737.89	167,92				
1980	20.12			1004.51					1004.51	202.15				
1981	20.30			1039.88					1039.88	211.12				
1982	20.71			1066.50					1066.50	220.87				
1985	23.69			1540.15					1540.15	364.79				
1986	24.56			1709.86					1709.86	419.98				
1987	25.24			1895.10					1895.10	478.39				
1988	26.66			2054.75					2054.75	547.70				
1989	27.97			2182.80	1835.70	347.10			2182.80	610.50				
1990	28.30	180	39		1938.60	368.75	77.10	17.36	2307.35	652.87	28.44	104.86	548.01	28.27
1991	29.18	200	46		2057.18	396.31	81.42	18.44	2453.49	715.90	28.73	113.84	602.05	29.27
1992	30.06	220	53		2190.78	429.49	86.40	19.82	2620.27	787.71	29.02	124.62	663.09	30.27
1993	30.95	240	60		2338.77	468.02	92.01	21.47	2806.78	868.58	29.31	137.16	731.43	31.27
1994	31.83	260	70		2500.54	514.62	98.23	23.40	3015.15	959.71	29.60	152.30	807.40	32.29
1995	32.71	280	80		2675.51	568.89	105.02	25.73	3244.40	1061.34	29.89	170.01	891.33	33.31
1996	31.72	290	85		2853.14	625.44	112.37	28.44	3478.58	1103.24	30.18	188.73	914.51	32.05
1997	32.31	300	90		3033.31	684.17	119.83	31.27	3717.48	1201.23	30.47	208.43	992.79	32.73
1998	32.91	310	95		3215.91	744.96	127.40	34.21	3960.87	1303.55	30.75	229.11	1074.44	33.41
1999	33.51	320	100		3400.84	807.71	135.07	37.25	4208.56	1410.22	31.04	250.75	1159.47	34.09
2000	34.11	330	105		3588.01	872.33	142.84	40.39	4460.34	1521.25	31.33	273.34	1247.91	34.78
2001	34.70	335	108		3772.31	936.21	150.70	43.62	4708.52	1634.04	31.62	296.07	1337.97	35.47
2002	35.30	340	110		3953.87	999.40	158.44	46.81	4953.28	1748.59	31.91	318.95	1429.64	36.16
2003	35.90	345	113		4132.81	1061.93	166.06	49.97	5194.74	1864.88	32.20	341.98	1522.90	36.85
2004	36.50	350	115		4309.23	1123.83	173.58	53.10	5433.07	1982.91	32.49	365.18	1617.74	37.54
2005	37.09	355	118		4483.25	1185.14	180.99	56.19	5668.39	2102.68	32.78	388.53	1714.15	38.23

Annexure VI.8 : LVP Scenario -- MS Sales Forecast

	ms cons HAR mb	ms cons HAR sc	ms cons HAR md	ms cons HAR 3 w	ms cons HAR cars	ms cons HAR jeeps	ms cons HAR all veh
1990/91	22785.83	51945.07	9684.746	12965.28	36229.28	2898.135	136508.3
1991/92	25609.00	56132.60	11033.35	14222.37	39351.98	3131.764	149481.0
1992/93	28571.42	60615.37	12469.51	15616.63	42808.60	3402.516	163484.0
1993/94	31647.39	65358.70	13982.30	17219.69	46603.38	3729.784	178541.2
1994/95	34813.60	70330.49	15561.67	18998.12	50737.79	4110.031	194551.7
1995/96	37843.57	75179.91	17100.05	20740.16	51339.32	4503.871	206706.9
1996/97	40741.39	79908.66	18598.05	22441.92	54965.16	4910.234	221565.4
1997/98	43511.02	84518.46	20056.31	24100.05	58664.70	5328.095	236178.6
1998/99	46156.33	89011.05	21475.44	25711.74	62434.06	5756.478	250545.1
1999/00	48681.10	93388.17	22856.09	27274.65	66269.38	6194.451	264663.8
2000/01	50996.06	97500.47	24152.85	28706.35	70071.84	6623.438	278051.0
2001/02	53115.31	101363.4	25370.65	30015.59	73839.72	7043.673	290748.3
2002/03	55051.96	104991.4	26514.12	31210.55	77571.43	7455.380	302794.9
2003/04	56818.22	108398.2	27587.57	32298.78	81265.56	7858.774	314227.1
2004/05	58425.46	111596.3	28595.04	33287.34	84920.82	8254.058	325079.0

	ms cons HP mb	ms cons HP sc	ms cons HP md	ms cons HP 3 w	ms cons HP cars	ms cons HP jeeps	ms cons HP all veh
1990/91	2583.072	8758.878	845.0924	670.2971	6510.210	4644.043	24011.59
1991/92	2886.822	9538.765	975.5146	753.1654	7041.042	5038.064	26233.37
1992/93	3202.690	10380.84	1117.083	847.1072	7626.697	5495.051	28669.47
1993/94	3527.580	11280.43	1269.185	956.7735	8267.190	6047.170	31348.33
1994/95	3858.723	12233.16	1431.241	1081.252	8962.047	6689.760	34256.19
1995/96	4171.023	13178.61	1593.543	1209.097	9029.440	7359.502	36541.22
1996/97	4465.211	14116.74	1756.079	1340.115	9625.723	8054.926	39358.80
1997/98	4741.996	15047.52	1918.835	1474.119	10229.57	8774.620	42186.67
1998/99	5002.060	15970.92	2081.800	1610.938	10840.20	9517.221	45023.15
1999/00	5246.065	16886.93	2244.961	1750.408	11456.81	10281.41	47866.60
2000/01	5464.692	17767.99	2403.728	1887.082	12062.28	11036.48	50622.27
2001/02	5659.845	18615.97	2558.343	2021.123	12656.43	11782.66	53294.37
2002/03	5833.287	19432.61	2709.034	2152.682	13239.09	12520.19	55886.90
2003/04	5986.651	20219.57	2856.017	2281.904	13810.13	13249.29	58403.58
2004/05	6121.449	20978.41	2999.496	2408.924	14369.47	13970.19	60847.95

Annexure VI.8 contd.

	ms cons JK mb	ms cons JK sc	ms cons JK md	ms cons JK 3 w	ms cons JK cars	ms cons JK jeeps	ms cons JK all veh
1990/91	3414.343	11577.61	1117.055	1797.982	19258.76	4338.222	41503.98
1991/92	3815.844	12608.48	1289.449	2020.266	20829.09	4706.296	45269.43
1992/93	4233.364	13721.54	1476.577	2272.252	22561.59	5133.190	49398.53
1993/94	4662.808	14910.64	1677.627	2566.417	24456.33	5648.951	53922.78
1994/95	5100.517	16169.98	1891.835	2900.315	26511.88	6249.225	58823.76
1995/96	5513.320	17419.68	2106.370	3243.244	26711.25	6874.862	61868.73
1996/97	5902.183	18659.72	2321.212	3594.680	28475.19	7524.491	66477.48
1997/98	6268.041	19890.04	2536.345	3954.130	30261.54	8196.792	71106.90
1998/99	6611.798	21110.61	2751.754	4321.129	32067.93	8890.491	75753.72
1999/00	6934.328	22321.40	2967.423	4695.238	33892.01	9604.365	80414.77
2000/01	7223.312	23486.00	3177.284	5061.849	35683.14	10309.70	84941.29
2001/02	7481.268	24606.86	3381.656	5421.394	37440.76	11006.74	89338.69
2002/03	7710.526	25686.32	3580.842	5774.284	39164.40	11695.70	93612.09
2003/04	7913.245	26726.54	3775.126	6120.905	40853.69	12376.80	97766.32
2004/05	8091.422	27729.57	3964.778	6461.620	42508.34	13050.22	101805.9

	ms cons PUN mb	ms cons PUN sc	ms cons PUN md	ms cons PUN 3 w	ms cons PUN cars	ms cons PUN jeeps	ms cons PUN all veh
1990/91	51026.49	112815.2	19292.47	18789.63	81474.73	3796.068	287194.6
1991/92	57348.68	121909.8	21978.97	20611.45	88497.25	4102.083	314448.2
1992/93	63982.71	131645.5	24839.85	22632.04	96270.72	4456.723	343827.6
1993/94	70871.04	141947.2	27853.41	24955.24	104804.6	4885.388	375316.9
1994/95	77961.42	152745.0	30999.60	27532.58	114102.4	5383.448	408724.5
1995/96	84746.74	163277.1	34064.12	30057.20	115455.1	5899.312	433499.6
1996/97	91236.10	173547.1	37048.21	32523.44	123609.1	6431.579	464395.6
1997/98	97438.40	183558.7	39953.12	34926.44	131928.9	6978.907	494784.5
1998/99	103362.3	193315.8	42780.11	37262.14	140405.7	7540.016	524666.1
1999/00	109016.2	202822.1	45530.41	39527.15	149030.8	8113.687	554040.4
2000/01	114200.3	211753.3	48113.62	41602.01	157582.0	8675.587	581926.9
2001/02	118946.2	220142.9	50539.55	43499.40	166055.4	9226.024	608409.6
2002/03	123283.1	228022.4	52817.38	45231.16	174447.5	9765.292	633567.0
2003/04	127238.4	235421.2	54955.74	46808.26	182755.1	10293.67	657472.6
2004/05	130837.7	242366.9	56962.68	48240.91	190975.3	10811.42	680195.0

Annexure VI.8 contd.

	ms cons RAJ mb	ms cons RAJ sc	ms cons RAJ md	ms cons RAJ 3 w	ms cons RAJ cars	ms cons RAJ jeeps	ms cons RAJ all veh
1990/91	37615.18	61067.87	17678.91	13044.73	24129.50	10129.14	163665.3
1991/92	41765.41	66599.69	20027.31	14630.85	26402.63	11088.04	180513.9
1992/93	46034.32	72581.90	22506.70	16425.90	28933.69	12203.31	198685.8
1993/94	50374.84	78983.71	25095.09	18518.74	31730.90	13551.05	218254.3
1994/95	54745.76	85776.11	27772.44	20890.12	34800.76	15126.77	239111.9
1995/96	58792.18	92536.49	30346.09	23317.76	35473.12	16791.86	257257.5
1996/97	62530.09	99264.42	32818.63	25797.58	38258.59	18545.00	277214.3
1997/98	65974.83	105959.5	35192.61	28325.74	41134.90	20384.89	296972.5
1998/99	69141.07	112621.3	37470.56	30898.62	44100.89	22310.28	316542.8
1999/00	72042.86	119249.7	39654.96	33512.82	47155.33	24319.96	335935.6
2000/01	74557.79	125649.4	41668.85	36064.01	50228.89	26342.39	354511.4
2001/02	76718.83	131832.9	43523.36	38555.59	53320.25	28378.06	372329.0
2002/03	78556.27	137811.4	45228.85	40990.77	56428.19	30427.42	389442.9
2003/04	80097.97	143595.8	46794.98	43372.56	59551.54	32490.91	405903.8
2004/05	81369.54	149196.3	48230.77	45703.81	62689.21	34568.96	421758.6

	ms cons CHD mb	ms cons CHD sc	ms cons CHD md	ms cons CHD 3 w	ms cons CHD cars	ms cons CHD jeeps	ms cons CHD all veh
1990/91	6815.858	12081.54	2037.084	1857.033	14583.06	439.5062	37814.08
1991/92	7656.772	13113.55	2301.520	2076.335	15859.80	480.8335	41488.82
1992/93	8538.515	14223.79	2579.544	2323.808	17274.46	528.8897	45469.01
1993/94	9453.355	15405.05	2868.526	2611.716	18829.26	586.9591	49754.87
1994/95	10394.27	16650.63	3166.087	2936.964	20525.31	654.8299	54328.11
1995/96	11293.66	17877.88	3450.249	3268.044	20794.61	726.4884	57410.94
1996/97	12152.79	19086.89	3721.405	3604.320	22291.05	801.8703	61658.34
1997/98	12972.90	20277.77	3979.943	3945.198	23821.12	880.9133	65877.85
1998/99	13755.18	21450.62	4226.243	4290.125	25383.37	963.5568	70069.10
1999/00	14500.83	22605.55	4460.675	4638.582	26976.33	1049.741	74231.71
2000/01	15183.31	23705.94	4674.697	4976.128	28559.84	1136.377	78236.30
2001/02	15806.92	24754.77	4869.711	5303.324	30133.16	1223.481	82091.37
2002/03	16375.62	25754.84	5047.022	5620.697	31695.58	1311.074	85804.85
2003/04	16893.12	26708.79	5207.843	5928.741	33246.49	1399.173	89384.17
2004/05	17362.89	27619.08	5353.301	6227.921	34785.30	1487.796	92836.30

Annexure VI.8 contd.

	ms cons DEL mb	ms cons DEL sc	ms cons DEL md	ms cons DEL 3 w	ms cons DEL cars	ms cons DEL jeeps	ms cons DEL all veh
1990/91	59123.57	104800.3	17670.51	50585.61	265326.8	8430.197	505937.0
1991/92	66418.00	113752.4	19964.34	56559.41	288556.1	9222.899	554473.2
1992/93	74066.61	123383.0	22376.03	63300.58	314294.7	10144.66	607565.6
1993/94	82002.31	133629.8	24882.78	71143.18	342583.0	11258.50	665499.5
1994/95	90164.27	144434.4	27463.95	80002.95	373441.2	12560.33	728067.2
1995/96	97965.95	155080.1	29928.88	89021.57	378340.8	13934.82	764272.1
1996/97	105418.3	165567.6	32281.00	98181.73	405567.3	15380.72	822396.8
1997/98	112532.3	175897.8	34523.67	107467.2	433405.6	16896.85	880723.6
1998/99	119318.1	186071.5	36660.17	116863.0	461829.5	18482.04	939224.5
1999/00	125786.2	196089.8	38693.74	126355.0	490812.1	20135.17	997872.2
2000/01	131706.3	205635.1	40550.25	135549.8	519622.8	21796.92	1054861.
2001/02	137115.7	214733.1	42241.89	144462.6	548248.0	23467.68	1110269.
2002/03	142048.9	223408.1	43779.96	153107.8	576675.0	25147.80	1164167.
2003/04	146537.9	231683.1	45174.98	161498.9	604892.5	26837.64	1216625.
2004/05	150612.8	239579.3	46436.74	169648.6	632890.0	28537.52	1267705.

	ms cons UP mt	ms cons UP sc	ms cons UP md	ms cons UP 3 w	ms cons UP cars	ms cons UP jeeps	ms cons UP all veh
1990/91	87645.70	171637.6	29740.89	38218.07	105639.9	18854.82	451737.0
1991/92	98605.84	186292.7	33741.90	42526.94	115029.2	20477.02	496673.6
1992/93	110120.5	202059.7	37977.28	47370.34	125444.5	22363.85	545336.3
1993/94	122096.5	218836.7	42411.42	52989.95	136906.4	24643.46	597884.5
1994/95	134445.1	236528.8	47011.83	59312.91	149427.1	27298.40	654024.2
1995/96	146292.2	253962.3	51453.17	65696.59	151581.3	30071.48	699057.2
1996/97	157652.1	271139.1	55739.54	72127.98	162699.7	32957.21	752315.8
1997/98	168538.9	288061.0	59875.01	78595.15	174094.9	35950.29	805115.4
1998/99	178966.3	304729.9	63863.55	85087.15	185757.7	39045.59	857450.2
1999/00	188947.6	321147.6	67709.08	91593.97	197678.8	42238.18	909315.4
2000/01	198134.8	336794.5	71279.65	97832.04	209565.1	45402.09	959008.3
2001/02	206580.3	351713.2	74593.19	103816.3	221411.2	48538.25	1006652.
2002/03	214333.1	365943.5	77666.44	109560.8	233212.4	51647.56	1052363.
2003/04	221438.5	379523.3	80514.98	115078.7	244964.2	54730.89	1096250.
2004/05	227939.1	392487.7	83153.36	120382.2	256662.6	57789.05	1138414.

Annexure VI.B contd.

	ms cons UP/HILL mb	ms cons UP/HILL sc	ms cons UP/HILL md	ms cons UP/HILL 3 w	ms cons UP/HILL cars	ms cons UP/HILL jeeps	ms cons UP/HILL all ve
1990/91	7363.742	25644.05	2154.834	1105.914	11397.67	993.4090	48659.
1991/92	8229.662	27927.39	2487.388	1242.637	12327.02	1077.694	53291.7
1992/93	9130.130	30392.80	2848.362	1397.631	13352.35	1175.448	58296.7
1993/94	10056.31	33026.61	3236.195	1578.568	14473.68	1293.552	63664.
1994/95	11000.32	35816.00	3649.409	1783.944	15690.20	1431.009	69370.
1995/96	11890.62	38584.06	4063.252	1994.874	15808.18	1574.273	73915.
1996/97	12729.28	41330.70	4477.689	2211.038	16852.12	1723.032	79323.
1997/98	13518.33	44055.82	4892.688	2432.130	17909.31	1876.982	84685.
1998/99	14259.71	46759.34	5308.218	2657.866	18978.36	2035.832	89999.
1999/00	14955.31	49441.20	5724.250	2887.976	20057.89	2199.302	95265.
2000/01	15578.57	52020.75	6129.078	3113.473	21117.91	2360.817	100320.
2001/02	16134.91	54503.44	6523.319	3334.624	22158.10	2520.433	105174.
2002/03	16629.35	56894.39	6907.554	3551.682	23178.18	2678.198	109839.
2003/04	17066.55	59198.44	7282.334	3764.884	24177.93	2834.162	114324.
2004/05	17450.83	61420.14	7648.179	3974.453	25157.18	2988.370	118639.

	ms cons UP/WEST mt	ms cons UP/WEST sc	ms cons UP/WEST md	ms cons UP/WEST 3 w	ms cons UP/WEST cars	ms cons UP/WEST jeeps	ms cons UP/WEST all ve
1990/91	22136.45	50499.22	9430.053	7555.171	44518.11	3353.171	137494.
1991/92	24881.41	54570.20	10743.19	8287.710	48355.24	3623.482	150461.
1992/93	27759.66	58928.20	12141.58	9100.176	52602.70	3936.745	164469.
1993/94	30748.24	63539.50	13614.59	10034.31	57265.68	4315.397	179517.
1994/95	33824.49	68372.90	15152.43	11070.64	62346.00	4755.346	195521.
1995/96	36768.38	73087.34	16650.35	12085.77	63085.15	5211.024	206888.
1996/97	39583.87	77684.47	18108.95	13077.43	67540.54	5681.189	221676.
1997/98	42274.81	82165.97	19528.86	14043.66	72086.49	6164.659	236264.
1998/99	44844.97	86533.51	20910.67	14982.83	76718.24	6660.302	250650.
1999/00	47298.00	90788.79	22255.01	15893.57	81431.03	7167.041	264833.
2000/01	49547.19	94786.63	23517.66	16727.85	86103.45	7663.383	278346.
2001/02	51606.23	98542.06	24703.44	17490.78	90733.37	8149.600	291225.
2002/03	53487.86	102069.1	25816.84	18187.11	95318.85	8625.949	303505.
2003/04	55203.94	105381.0	26862.06	18821.24	99858.15	9092.680	315219.
2004/05	56765.51	108490.1	27843.04	19397.30	104349.7	9550.028	326395.

Annexure VI.8 contd.

	ms cons UP/OTH mb	ms cons UP/OTH sc	ms cons UP/OTH md	ms cons UP/OTH 3 w	ms cons UP/OTH cars	ms cons UP/OTH jeeps	ms cons UP/OTH all veh
1990/91	58147.50	95494.37	18156.00	29556.98	49724.12	14504.24	265583.2
1991/92	65494.77	103795.1	20511.31	32996.59	54346.93	15775.84	292920.6
1992/93	73230.78	112738.7	22987.34	36872.53	59489.53	17251.66	322570.5
1993/94	81291.97	122270.6	25560.64	41377.06	65167.03	19034.51	354701.8
1994/95	89620.32	132339.8	28209.99	46458.32	71390.95	21112.04	389131.5
1995/96	97633.21	142290.9	30739.56	51615.94	72687.99	23286.18	418253.8
1996/97	105338.9	152124.0	33152.89	56839.51	78307.10	25552.99	451315.5
1997/98	112745.8	161839.2	35453.45	62119.35	84099.13	27908.64	484165.7
1998/99	119861.6	171437.0	37644.65	67446.45	90061.11	30349.45	516800.4
1999/00	126694.3	180917.6	39729.82	72812.42	96189.93	32871.84	549216.0
2000/01	133009.0	189987.1	41632.90	77990.71	102343.7	35377.89	580341.5
2001/02	138839.2	198667.7	43366.42	82990.92	108519.7	37868.21	610252.2
2002/03	144215.9	206980.0	44942.04	87822.08	114715.3	40343.41	639018.8
2003/04	149168.0	214943.8	46370.59	92492.63	120928.1	42804.05	666707.2
2004/05	153722.7	222577.4	47662.14	97010.52	127155.7	45250.65	693379.2

	ms cons NORTH R. mb	ms cons NORTH R. sc	ms cons NORTH R. md	ms cons NORTH R. 3 w	ms cons NORTH R. cars	ms cons NORTH R. jeeps	ms cons NORTH R. all veh
1990/91	271014.0	534684.2	98066.76	137928.6	553152.2	53526.14	1648372.
1991/92	304106.3	579948.1	111312.3	153400.8	601567.1	58247.01	1808581.
1992/93	338750.2	628611.8	125342.5	170788.6	655215.1	63728.21	1982436.
1993/94	374635.8	680352.3	140040.3	190961.7	714181.1	70351.27	2170522.
1994/95	411483.7	734868.7	155298.6	213655.2	778508.6	78072.80	2371887.
1995/96	446618.7	788512.2	170042.4	236553.7	788725.0	86162.21	2516614.
1996/97	480098.3	841290.4	184284.1	259611.7	845492.0	94606.05	2705382.
1997/98	511978.4	893210.9	198035.8	282788.1	903541.4	103391.3	2892946.
1998/99	542313.3	944281.9	211309.6	306044.9	962819.4	112505.6	3079275.
1999/00	571155.3	994511.5	224117.3	329347.8	1023271.	121936.9	3264340.
2000/01	597466.7	1042292.	236020.9	351679.2	1083376.	131323.0	3442159.
2001/02	621424.5	1087763.	247078.3	373095.4	1143105.	140666.5	3613133.
2002/03	643192.8	1131050.	257343.6	393648.8	1202433.	149970.4	3777640.
2003/04	662924.2	1172276.	266867.2	413388.9	1261339.	159237.1	3936033.
2004/05	680760.5	1211553.	275696.2	432361.5	1319801.	168469.2	4088642.

Annexure VIII.1 : BAU Scenario -- Projections of Sales and Registrations of HSD using Vehicles

	sales HCV(truk) HAR	sales HCV(bus) HAR	sales LCV(HSD) HAR	regist HCV(truk) HAR	regist# HCV(bus) HAR	regist# LCV HAR	regist HAR 3 w	regist HAR cars	regist HAR jeeps
1988-89				17510	5242	9585	6950	16800	5350
1989-90	1481	721	1196	18621	5575	10579	7724	17248	5650
1990-91	1548	753	1360	19776	5920	11715	8641	18949	6134
1991-92	1644	801	1731	21003	6288	13199	9709	20870	6715
1992-93	1741	848	2102	22301	6676	15022	10920	23021	7390
1993-94	1838	895	2472	23668	7086	17177	12334	25412	8207
1994-95	1934	942	2843	25103	7515	19658	13939	28054	9161
1995-96	2031	989	3214	26604	7965	22457	15723	28886	10251
1996-97	2128	1036	3585	28171	8434	25568	17677	31557	11473
1997-98	2225	1083	3956	29801	8922	28985	19791	34441	12826
1998-99	2321	1130	4327	31494	9428	32700	22150	37546	14390
1999-00	2418	1177	4698	33247	9953	36707	24742	40874	16162
2000-01	2515	1224	5068	35060	10496	41001	27551	44430	18137
2001-02	2611	1271	5439	36932	11057	45575	30566	48218	20312
2002-03	2708	1319	5810	38861	11634	50424	33774	52240	22682
2003-04	2805	1366	6181	40846	12228	55541	37288	56518	25366
2004-05	2902	1413	6552	42886	12839	60921	41089	61027	28357

	sales HCV(truk) HP	sales HCV(bus) HP	sales LCV(HSD) HP	regist HCV(truk) HP	regist# HCV(bus) HP	regist# LCV# HP	regist HP 3 w	regist HP cars	regist HP jeeps
1988-89				0	2790	10596	1040	4250	4400
1989-90	498	239	154	0	2889	11024	1127	4728	4850
1990-91	520	249	175	0	2994	11486	1261	5195	5266
1991-92	553	265	223	0	3107	12018	1417	5721	5765
1992-93	586	280	270	0	3228	12619	1594	6311	6344
1993-94	618	296	318	0	3356	13288	1800	6967	7045
1994-95	651	312	366	0	3492	14022	2034	7691	7864
1995-96	683	327	414	0	3636	14821	2295	7919	8800
1996-97	716	343	461	0	3787	15682	2580	8651	9849
1997-98	748	358	509	0	3945	16606	2886	9442	11011
1998-99	781	374	557	0	4110	17590	3233	10293	12354
1999-00	813	389	604	0	4282	18634	3611	11205	13875
2000-01	846	405	652	0	4461	19735	4021	12180	15571
2001-02	878	421	700	0	4646	20894	4461	13219	17437
2002-03	911	436	748	0	4838	22108	4929	14321	19472
2003-04	943	452	795	0	5036	23376	5442	15491	21776
2004-05	976	467	842	0	5240	24697	5997	16730	24344

: includes trucks.

Annexure VIII.1 contd.

	sales HCV(truk) JK	sales HCV(bus) JK	sales LCV(HSD) JK	regist HCV(truk) JK	regist# HCV(bus) JK	regist# LCV# JK	regist JK 3 w	regist JK cars	regist JK jeeps
1988-89				0	3461	15326	3070	15300	4750
1989-90	1184	410	446	0	3710	16546	3555	16447	5212
1990-91	1237	428	507	0	3969	17843	3977	18069	5659
1991-92	1314	455	645	0	4243	19302	4469	19901	6194
1992-93	1392	482	783	0	4533	20919	5026	21952	6817
1993-94	1469	509	921	0	4837	22691	5677	24232	7570
1994-95	1546	535	1059	0	5156	24614	6416	26751	8451
1995-96	1624	562	1197	0	5490	26686	7237	27544	9456
1996-97	1701	589	1336	0	5837	28903	8136	30091	10583
1997-98	1778	616	1474	0	6198	31262	9109	32841	11831
1998-99	1856	643	1612	0	6573	33760	10195	35801	13275
1999-00	1933	669	1750	0	6961	36394	11388	38975	14909
2000-01	2010	696	1888	0	7361	39162	12681	42366	16731
2001-02	2088	723	2026	0	7775	42060	14069	45978	18737
2002-03	2165	750	2164	0	8200	45086	15546	49813	20923
2003-04	2242	776	2303	0	8638	48237	17163	53883	23399
2004-05	2320	803	2441	0	9057	51511	18913	58192	26159

: includes trucks.

	sales HCV(truk) PUN	sales HCV(bus) PUN	sales LCV(HSD) PUN	regist HCV(truk) PUN	regist# HCV(bus) PUN	regist# LCV(HSD) PUN	regist PUN 3 w	regist PUN cars	regist PUN jeeps
1988-89				22971	8731	12574	14050	50900	9550
1989-90	1943	946	1569	24430	9286	13878	16589	54410	10509
1990-91	2030	988	1784	25944	9861	15369	18558	59776	11409
1991-92	2157	1050	2270	27554	10473	17315	20853	65836	12489
1992-93	2284	1112	2757	29257	11120	19707	23454	72621	13745
1993-94	2411	1174	3243	31050	11802	22534	26490	80164	15264
1994-95	2538	1236	3730	32933	12518	25789	29936	88497	17038
1995-96	2665	1297	4216	34902	13267	29461	33769	91121	19065
1996-97	2792	1359	4703	36958	14048	33542	37966	99547	21339
1997-98	2918	1421	5189	39096	14861	38024	42505	108646	23855
1998-99	3045	1483	5676	41317	15705	42898	47573	118439	26765
1999-00	3172	1544	6162	43617	16579	48155	53138	128938	30060
2000-01	3299	1606	6649	45996	17483	53788	59171	140157	33734
2001-02	3426	1668	7135	48451	18416	59788	65646	152105	37778
2002-03	3553	1730	7622	50982	19378	66149	72537	164793	42186
2003-04	3680	1792	8108	53586	20368	72861	80083	178257	47178
2004-05	3807	1853	8595	56262	21385	79919	88247	192510	52742

Annexure VIII.1 contd.

	sales HCV(truk) RAJ	sales HCV(bus) RAJ	sales LCV(HSD) RAJ	regist HCV(truk) RAJ	regist* HCV(bus) RAJ	regist* LCV(HSD) RAJ	regist RAJ 3 w	regist RAJ cars	regist RAJ jeeps
1988-89				32716	6791	10102	13080	28400	29800
1989-90	2121	642	966	34146	7088	10855	13261	30400	32953
1990-91	2216	671	1098	35642	7399	11725	14835	33398	35777
1991-92	2354	713	1398	37244	7731	12875	16669	36784	39164
1992-93	2493	755	1697	38951	8086	14301	18748	40574	43103
1993-94	2631	797	1997	40760	8461	15996	21175	44789	47864
1994-95	2770	839	2296	42670	8858	17955	23930	49445	53429
1995-96	2908	881	2596	44678	9274	20172	26994	50911	59785
1996-97	3047	923	2896	46782	9711	22642	30348	55619	66915
1997-98	3185	965	3195	48980	10167	25359	33977	60702	74806
1998-99	3324	1007	3495	51270	10643	28319	38028	66173	83930
1999-00	3462	1049	3794	53650	11137	31516	42476	72040	94264
2000-01	3601	1091	4094	56119	11649	34944	47299	78308	105784
2001-02	3739	1133	4393	58674	12180	38600	52475	84983	118466
2002-03	3878	1175	4693	61313	12728	42479	57983	92072	132287
2003-04	4016	1217	4992	64036	13293	46575	64016	99595	147942
2004-05	4155	1258	5292	66839	13875	50884	70542	107558	165391

	sales HCV(truk) UP	sales HCV(bus) UP	sales LCV(HSD) UP	regist HCV(truk) UP	regist* HCV(bus) UP	regist* LCV(HSD) UP	regist UP 3 w	regist UP cars	regist UP jeeps
1988-89				41957	12022	21229	18750	87000	26700
1989-90	4756	2261	3578	45828	13131	24332	20249	94379	28686
1990-91	4969	2363	4068	49830	14277	27854	22652	103686	31144
1991-92	5279	2510	5177	54058	15489	32403	25453	114199	34092
1992-93	5590	2658	6286	58507	16764	37956	28628	125968	37522
1993-94	5901	2806	7396	63173	18101	44493	32334	139052	41666
1994-95	6211	2953	8505	68052	19498	51993	36540	153506	46510
1995-96	6522	3101	9614	73137	20956	60435	41219	158058	52043
1996-97	6832	3249	10723	78427	22471	69800	46341	172674	58250
1997-98	7143	3396	11833	83915	24043	80067	51882	188456	65119
1998-99	7453	3544	12942	89597	25672	91219	58067	205442	73062
1999-00	7764	3692	14051	95471	27355	103236	64860	223655	82057
2000-01	8075	3839	15161	101531	29091	116101	72225	243115	92085
2001-02	8385	3987	16270	107774	30880	129794	80128	263840	103125
2002-03	8696	4135	17379	114195	32720	144299	88539	285848	115156
2003-04	9006	4282	18489	120792	34610	159599	97751	309202	128784
2004-05	9317	4430	19598	127560	36549	175677	107716	333926	143974

Annexure VIII.1 contd.

	sales HCV(truk) UP/HILL	sales HCV(bus) UP/HILL	sales LCV(HSD) UP/HILL	regist HCV(truk) UP/HILL	registt HCV(bus) UP/HILL	registt LCV(HSD) UP/HILL	regist UP/HILL 3 w	regist UP/HILL cars	regist UP/HILL jeeps
1988-89				0	500	883	780	3617	1110
1989-90	0	94	149	0	546	1012	842	3924	1193
1990-91	0	98	169	0	594	1159	942	4311	1295
1991-92	0	104	215	0	644	1348	1059	4748	1417
1992-93	0	111	262	0	697	1579	1191	5237	1560
1993-94	0	117	308	0	753	1851	1345	5781	1732
1994-95	0	123	354	0	811	2163	1520	6382	1934
1995-96	0	129	400	0	872	2514	1715	6571	2164
1996-97	0	135	446	0	935	2904	1928	7179	2422
1997-98	0	141	492	0	1000	3331	2158	7835	2707
1998-99	0	147	538	0	1068	3795	2416	8541	3037
1999-00	0	154	585	0	1138	4295	2698	9298	3411
2000-01	0	160	631	0	1210	4830	3005	10107	3828
2001-02	0	166	677	0	1285	5399	3333	10969	4287
2002-03	0	172	723	0	1361	6003	3683	11884	4787
2003-04	0	178	769	0	1440	6639	4066	12855	5354
2004-05	0	184	815	0	1529	7308	4431	13833	5985

	sales HCV(truk) UP/OTH	sales HCV(bus) UP/OTH	sales LCV(HSD) UP/OTH	regist HCV(truk) UP/OTH	registt HCV(bus) UP/OTH	registt LCV(HSD) UP/OTH	regist UP/OTH 3 w	regist UP/OTH cars	regist UP/OTH jeeps
1988-89				32199	8842	15614	13791	63992	19639
1989-90	3650	1663	2632	35169	9658	17896	14894	69420	21100
1990-91	3813	1738	2992	38241	10501	20487	16661	76265	22908
1991-92	4052	1846	3808	41485	11392	23832	18721	83998	25076
1992-93	4290	1955	4623	44900	12330	27917	21056	92654	27599
1993-94	4528	2064	5439	48481	13313	32725	23782	102278	30647
1994-95	4767	2172	6255	52225	14341	38241	26876	112910	34210
1995-96	5005	2281	7071	56127	15413	44450	30317	116258	38280
1996-97	5243	2389	7887	60186	16527	51338	34085	127008	42845
1997-98	5482	2498	8703	64398	17684	58890	38160	138617	47898
1998-99	5720	2607	9519	68759	18882	67092	42710	151111	53740
1999-00	5958	2715	10335	73267	20119	75930	47706	164507	60357
2000-01	6197	2824	11151	77917	21396	85392	53123	178821	6773
2001-02	6435	2932	11967	82708	22712	95464	58936	194065	7585
2002-03	6673	3041	12783	87636	24065	106132	65123	210253	8470
2003-04	6912	3150	13599	92699	25455	117385	71898	227431	9472
2004-05	7150	3258	14414	97893	26882	129210	79227	245616	10589

Annexure VIII.1 contd.

	sales HCV(truk) UP/WEST	sales HCV(bus) UP/WEST	sales LCV(HSD) UP/WEST	regist HCV(truk) UP/WEST	regist* HCV(bus) UP/WEST	regist* LCV(HSD) UP/WEST	regist UP/WEST 3 w	regist UP/WEST cars	regist UP/WEST jeeps
1988-89				9758	2680	4732	4179	19391	5951
1989-90	1106	504	798	10658	2927	5424	4513	21036	6394
1990-91	1156	527	907	11589	3182	6209	5049	23110	6942
1991-92	1228	560	1154	12573	3452	7223	5673	25453	7599
1992-93	1300	592	1401	13607	3737	8460	6381	28076	8363
1993-94	1372	625	1648	14693	4035	9918	7207	30993	9287
1994-95	1445	658	1896	15827	4346	11589	8144	34214	10366
1995-96	1517	691	2143	17010	4671	13471	9187	35229	11600
1996-97	1589	724	2390	18240	5009	15558	10329	38486	12983
1997-98	1661	757	2638	19516	5359	17847	11563	42004	14514
1998-99	1733	790	2885	20838	5722	20333	12942	45790	16284
1999-00	1806	823	3132	22204	6097	23011	14456	49849	18289
2000-01	1878	856	3379	23614	6484	25879	16097	54187	20524
2001-02	1950	889	3627	25065	6883	28931	17859	58806	22985
2002-03	2022	922	3874	26559	7293	32164	19734	63711	25666
2003-04	2095	955	4121	28093	7715	35575	21787	68917	28704
2004-05	2167	987	4368	29667	8147	39158	24008	74427	32089

	sales HCV(truk) CHD	sales HCV(bus) CHD	sales LCV(HSD) CHD	regist HCV(truk) CHD	regist* HCV(bus) CHD	regist* LCV(HSD) CHD	regist CHD 3 w	regist CHD cars	regist CHD jeeps
1988-89				3527	1375	1931	2560	26100	2300
1989-90	298	145	241	3751	1462	2131	2760	26173	2277
1990-91	312	152	274	3983	1553	2360	3088	28754	2472
1991-92	331	161	349	4231	1649	2659	3469	31670	2706
1992-93	351	171	423	4492	1751	3026	3902	34933	2978
1993-94	370	180	498	4767	1859	3460	4407	38562	3307
1994-95	390	190	573	5056	1971	3960	4981	42570	3691
1995-96	409	199	648	5359	2089	4524	5618	43833	4130
1996-97	429	209	722	5674	2212	5151	6317	47886	4623
1997-98	448	218	797	6003	2340	5839	7072	52263	5168
1998-99	468	228	872	6344	2473	6587	7915	56973	5799
1999-00	487	237	946	6697	2611	7395	8841	62024	6512
2000-01	507	247	1021	7062	2753	8260	9845	67421	7308
2001-02	526	256	1096	7439	2900	9181	10922	73168	8184
2002-03	546	266	1171	7828	3052	10158	12069	79271	9139
2003-04	565	275	1245	8228	3208	11189	13324	85748	10221
2004-05	584	285	1320	8638	3368	12273	14683	92604	11426

Annexure VIII.1 contd.

	sales HCV(truk) DEL	sales HCV(bus) DEL	sales LCV(HSD) DEL	regist HCV(truk) DEL	regist$ HCV(bus) DEL	regist$ LCV(HSD) DEL	regist DEL 3 w	regist DEL cars	regist DEL jeeps
1988-89				39021	16224	28994	43240	284200	14700
1989-90	2503	1313	2744	40701	16922	31126	47931	304223	14722
1990-91	2615	1372	3119	42458	17652	33589	53619	334225	15983
1991-92	2779	1458	3970	44341	18435	36850	60248	368111	17496
1992-93	2942	1544	4821	46347	19269	40893	67763	406047	19256
1993-94	3106	1629	5671	48475	20154	45702	76535	448224	21383
1994-95	3269	1715	6522	50721	21088	51260	86493	494815	23869
1995-96	3432	1801	7373	53083	22070	57551	97567	509488	26709
1996-97	3596	1887	8224	55559	23099	64560	109692	556600	29894
1997-98	3759	1972	9074	58146	24175	72272	122807	607473	33419
1998-99	3923	2058	9925	60842	25296	80672	137449	662227	37495
1999-00	4086	2144	10776	63645	26461	89746	153527	720935	42112
2000-01	4250	2230	11626	66551	27670	99479	170960	783662	47258
2001-02	4413	2315	12477	69560	28921	109857	189668	850469	52924
2002-03	4577	2401	13328	72669	30213	120867	209577	921409	59099
2003-04	4740	2487	14175	75676	31546	132495	231381	996690	66092
2004-05	4904	2573	15029	79179	32920	144729	254968	1076385	73888

	sales HCV(truk) NR	sales HCV(bus) NR	sales LCV(HSD) NR	regist HCV(trut) NR	regist$ HCV(bus) NR	regist$ LCV(HSD) NR	regist NR 3 w	regist NR cars	regist NR jeeps
1988-89				157702	56636	110337	102740	512950	97550
1989-90	14785	6678	10895	167477	60064	120471	113197	548009	104858
1990-91	15447	6977	12384	177633	63626	131941	126632	602052	113845
1991-92	16412	7413	15762	188430	67416	146621	142287	663092	124622
1992-93	17378	7849	19139	199855	71427	164443	160034	731427	137157
1993-94	18343	8285	22517	211894	75656	185341	180752	807403	152304
1994-95	19309	8721	25894	224534	80097	209250	204269	891328	170014
1995-96	20274	9157	29272	237764	84746	236107	230421	917760	190238
1996-97	21240	9593	32650	251570	89599	265848	259057	1002625	212927
1997-98	22205	10030	36027	265940	94652	298415	290031	1094263	238035
1998-99	23170	10466	39405	280863	99900	333746	324610	1192894	267070
1999-00	24136	10902	42782	296326	105339	371783	362582	1298647	299953
2000-01	25101	11338	46160	312319	110965	412470	403752	1411640	336608
2001-02	26067	11774	49537	328830	116774	455750	447935	1531981	376962
2002-03	27032	12210	52915	345848	122763	501569	494955	1659769	420943
2003-04	27998	12646	56292	363363	128927	549873	546447	1795375	470757
2004-05	28963	13082	59670	381363	135263	600610	602153	1938931	526282

Annexure VIII.2 : BAU Scenario -- Projections of HSD sales for Road Transport

	HSD sale HCV(truk) HAR (k.litre)	HSD sale HCV(bus) HAR (k.litre)	HSD sale LCV(HSD) HAR (k.litre)	HSD sale HAR 3 w (k.litre)	HSD sale HAR cars (k.litre)	HSD sale HAR jeeps (k.litre)	HSD sale HAR Total (k.litre)
1990/91	341789	103613	75076	1249	0	11119	532846
1991/92	362229	110007	84484	1404	0	12070	570193
1992/93	383800	116767	96042	1579	0	13173	611361
1993/94	406470	123886	109695	1783	0	14506	656339
1994/95	430205	131355	125392	2015	0	16057	705024
1995/96	454974	139168	143081	2273	0	17817	757313
1996/97	480747	147315	162714	2556	0	19776	813107
1997/98	507494	155790	184240	2861	0	21923	872308
1998/99	535184	164586	207613	3202	0	24392	934977
1999/00	563790	173694	232787	3577	0	27166	1001014
2000/01	593283	183109	259715	3983	0	30232	1070321
2001/02	623636	192822	288353	4419	0	33573	1142804
2002/03	654823	202829	318658	4883	0	37177	1218370
2003/04	686816	213121	350588	5391	0	41230	1297147
2004/05	719594	223692	38416[illegible]	594[illegible]	0	45708	1379035

	HSD sale HCV(truk) HP (k.litre)	HSD sale HCV(bus) HP (k.litre)	HSD sale LCV(HSD) HP (k.litre)	HSD sale HP 3 w (k.litre)	HSD sale HP cars (k.litre)	HSD sale HP jeeps (k.litre)	HSD sale HP Total (k.litre)
1990/91	0	28083	62640	0	0	2997	93720
1991/92	0	29141	65314	0	0	3261	97717
1992/93	0	30273	68342	0	0	3569	102184
1993/94	0	31479	71711	0	0	3940	107130
1994/95	0	32756	75410	0	0	4373	112539
1995/96	0	34103	79428	0	0	4865	118396
1996/97	0	35519	83755	0	0	5413	124688
1997/98	0	37002	88380	0	0	6017	131399
1998/99	0	38551	93292	0	0	6712	138555
1999/00	0	40165	98482	0	0	7494	146141
2000/01	0	41841	103941	0	0	8362	154143
2001/02	0	43579	109658	0	0	9310	162547
2002/03	0	45377	115625	0	0	10336	171338
2003/04	0	47235	121832	0	0	11493	180560
2004/05	0	49150	128272	0	0	12774	190196

Annexure VIII.2 contd.

	HSD sale HCV(truk) JK (k.litre)	HSD sale HCV(bus) JK (k.litre)	HSD sale LCV(HSD) JK (k.litre)	HSD sale JK 3 w (k.litre)	HSD sale JK cars (k.litre)	HSD sale JK jeeps (k.litre)	HSD sale JK Total (k.litre)
1990/91	0	29349	76719	0	0	2329	108397
1991/92	0	31377	82702	0	0	2535	116614
1992/93	0	33518	89318	0	0	2774	125609
1993/94	0	35769	96545	0	0	3062	135377
1994/95	0	38129	104364	0	0	3399	145891
1995/96	0	40595	112753	0	0	3781	157129
1996/97	0	43164	121695	0	0	4208	169066
1997/98	0	45835	131169	0	0	4677	181681
1998/99	0	48605	141158	0	0	5217	194980
1999/00	0	51472	151643	0	0	5825	208941
2000/01	0	54435	162607	0	0	6499	223542
2001/02	0	57491	174033	0	0	7236	238761
2002/03	0	60638	185905	0	0	8034	254577
2003/04	0	63875	198205	0	0	8933	271013
2004/05	0	67198	210919	0	0	9929	288046

	HSD sale HCV(truk) PUN (k.litre)	HSD sale HCV(bus) PUN (k.litre)	HSD sale LCV(HSD) PUN (k.litre)	HSD sale PUN 3 w (k.litre)	HSD sale PUN cars (k.litre)	HSD sale PUN jeeps (k.litre)	HSD sale PUN Total (k.litre)
1990/91	539484	206354	119790	3392	0	25669	894690
1991/92	571746	219087	134801	3811	0	27865	957310
1992/93	605793	232551	153241	4287	0	30411	1026283
1993/94	641573	246728	175025	4842	0	33488	1101656
1994/95	679035	261604	200069	5472	0	37070	1183251
1995/96	718130	277163	228293	6172	0	41133	1270892
1996/97	758809	293389	259617	6939	0	45655	1364409
1997/98	801024	310268	293963	7769	0	50612	1463636
1998/99	844730	327784	331255	8695	0	56312	1568776
1999/00	889880	345924	371419	9712	0	62717	1679653
2000/01	936431	364674	414383	10815	0	69794	1796097
2001/02	984339	384020	460076	11999	0	77509	1917942
2002/03	1033563	403948	508428	13258	0	85829	2045027
2003/04	1084062	424445	559372	14638	0	95185	2177702
2004/05	1135796	445499	612841	16130	0	105523	2315789

Annexure VIII.2 contd.

	HSD sale HCV(truk) RAJ (k.litre)	HSD sale HCV(bus) RAJ (k.litre)	HSD sale LCV(HSD) RAJ (k.litre)	HSD sale RAJ 3 w (k.litre)	HSD sale RAJ cars (k.litre)	HSD sale RAJ jeeps (k.litre)	HSD sale RAJ Total (k.litre)
1990/91	847160	101063	63662	10734	0	48184	1070803
1991/92	875601	105606	69512	11967	0	52603	1115290
1992/93	905757	110446	76772	13354	0	57738	1164067
1993/94	937509	115576	85385	14965	0	63941	1217377
1994/95	970744	120991	95298	16781	0	71183	1274996
1995/96	1005353	126685	106458	18781	0	79435	1336712
1996/97	1041233	132650	118815	20950	0	88669	1402318
1997/98	1078283	138883	132320	23272	0	98857	1471615
1998/99	1116409	145377	146924	25844	0	110615	1545168
1999/00	1155518	152126	162581	28641	0	123899	1622765
2000/01	1195523	159126	179246	31645	0	138664	1704204
2001/02	1236340	166371	196876	34834	0	154868	1789288
2002/03	1277889	173855	215428	38190	0	172469	1877831
2003/04	1320094	181575	234861	41834	0	192357	1970720
2004/05	1362880	189524	255134	45738	0	214464	2067740

	HSD sale HCV(truk) UP (k.litre)	HSD sale HCV(bus) UP (k.litre)	HSD sale LCV(HSD) UP (k.litre)	HSD sale UP 3 w (k.litre)	HSD sale UP cars (k.litre)	HSD sale UP jeeps (k.litre)	HSD sale UP Total (k.litre)
1990/91	1520147	254902	388088	3657	0	93866	2260660
1991/92	1648451	276296	441188	4092	0	102247	2472275
1992/93	1783397	298785	505062	4582	0	111979	2703805
1993/94	1924833	322341	578623	5153	0	123736	2954686
1994/95	2072613	346938	660857	5798	0	137447	3223653
1995/96	2226593	372551	750820	6512	0	153041	3509518
1996/97	2386631	399155	847631	7289	0	170454	3811161
1997/98	2552590	426726	950469	8125	0	189620	4127530
1998/99	2724335	455239	1058570	9055	0	211706	4458906
1999/00	2901734	484672	1171227	10070	0	236608	4804311
2000/01	3084658	515001	1287780	11165	0	264221	5162826
2001/02	3272980	546205	1407620	12333	0	294448	5533586
2002/03	3466577	578261	1530182	13569	0	327191	5915779
2003/04	3665328	611149	1654941	14916	0	364118	6310452
2004/05	3869114	644846	1781416	16366	0	405073	6716815

Annexure VIII.2 contd.

	HSD sale HCV(truk) UP/HILL (k.litre)	HSD sale HCV(bus) UP/HILL (k.litre)	HSD sale LCV(HSD) UP/HILL (k.litre)	HSD sale UP/HILL 3 w (k.litre)	HSD sale UP/HILL cars (k.litre)	HSD sale UP/HILL jeeps (k.litre)	HSD sale UP/HILL Total (k.litre)
1990/91	0	10071	11075	58	0	4531	25736
1991/92	0	10925	12839	65	0	4932	28762
1992/93	0	11825	14987	73	0	5396	32282
1993/94	0	12768	17508	83	0	5958	36316
1994/95	0	13754	20387	94	0	6612	40847
1995/96	0	14781	23615	106	0	7356	45858
1996/97	0	15850	27180	119	0	8186	51334
1997/98	0	16960	31069	133	0	9098	57260
1998/99	0	18108	35273	149	0	10149	63679
1999/00	0	19295	39781	166	0	11333	70575
2000/01	0	20520	44583	185	0	12644	77932
2001/02	0	21782	49667	206	0	14078	85733
2002/03	0	23079	55026	227	0	15630	93962
2003/04	0	24413	60648	251	0	17378	102690
2004/05	0	25781	66526	276	0	19316	111898

	HSD sale HCV(truk) UP/OTH (k.litre)	HSD sale HCV(bus) UP/OTH (k.litre)	HSD sale LCV(HSD) UP/OTH (k.litre)	HSD sale UP/OTH 3 w (k.litre)	HSD sale UP/OTH cars (k.litre)	HSD sale UP/OTH jeeps (k.litre)	HSD sale UP/OTH Total (k.litre)
1990/91	1386839	206835	351696	3122	0	82082	2030573
1991/92	1504138	224164	398932	3490	0	89443	2220166
1992/93	1627535	242376	455655	3905	0	97990	2427461
1993/94	1756896	261449	520815	4388	0	108317	2651864
1994/95	1892090	281360	593432	4933	0	120361	2892176
1995/96	2032988	302090	672593	5537	0	134064	3147271
1996/97	2179463	323618	757450	6193	0	149369	3416093
1997/98	2331393	345923	847214	6898	0	166222	3697650
1998/99	2488657	368986	941154	7681	0	185647	3992125
1999/00	2651136	392788	1038589	8536	0	207555	4298603
2000/01	2818715	417309	1138892	9457	0	231858	4616230
2001/02	2991281	442532	1241480	10438	0	258470	4944201
2002/03	3168723	468439	1345817	11475	0	287311	5281765
2003/04	3350933	495011	1451407	12604	0	319847	5629802
2004/05	3537805	522233	1557793	13818	0	355943	5987591

Annexure VIII.2 contd.

	HSD sale HCV(truk) UP/WEST (k.litre)	HSD sale HCV(bus) UP/WEST (k.litre)	HSD sale LCV(HSD) UP/WEST (k.litre)	HSD sale UP/WEST 3 w (k.litre)	HSD sale UP/WEST cars (k.litre)	HSD sale UP/WEST jeeps (k.litre)	HSD sale UP/WEST Total (k.litre)
1990/91	133308	37996	25317	478	0	7253	204351
1991/92	144314	41207	29417	537	0	7873	223348
1992/93	155862	44584	34419	604	0	8592	244062
1993/94	167937	48125	40300	682	0	9462	266506
1994/95	180524	51824	47038	771	0	10474	290630
1995/96	193606	55680	54612	869	0	11622	316388
1996/97	207168	59687	63001	977	0	12899	343733
1997/98	221197	63844	72185	1094	0	14300	372620
1998/99	235679	68145	82143	1225	0	15910	403102
1999/00	250598	72589	92857	1368	0	17720	435132
2000/01	265943	77172	104306	1523	0	19719	468664
2001/02	281699	81891	116473	1690	0	21899	503652
2002/03	297853	86743	129339	1867	0	24250	540053
2003/04	314394	91725	142886	2061	0	26893	577960
2004/05	331309	96833	157097	2272	0	29814	617326

	HSD sale HCV(truk) CHD (k.litre)	HSD sale HCV(bus) CHD (k.litre)	HSD sale LCV(HSD) CHD (k.litre)	HSD sale CHD 3 w (k.litre)	HSD sale CHD cars (k.litre)	HSD sale CHD jeeps (k.litre)	HSD sale CHD Total (k.litre)
1990/91	10335	5317	1344	0	6	214	17216
1991/92	10857	5647	1485	0	7	234	18231
1992/93	11403	5996	1659	0	8	258	19323
1993/94	11971	6363	1861	0	9	286	20490
1994/95	12560	6749	2089	0	10	320	21727
1995/96	13167	7153	2342	0	10	358	23029
1996/97	13791	7574	2616	0	11	400	24392
1997/98	14431	8012	2910	0	12	447	25812
1998/99	15086	8467	3221	0	13	502	27288
1999/00	15753	8938	3547	0	14	564	28817
2000/01	16432	9426	3888	0	15	633	30394
2001/02	17122	9929	4240	0	17	709	32016
2002/03	17821	10448	4602	0	18	791	33680
2003/04	18529	10981	4974	0	19	885	35388
2004/05	19243	11530	5353	0	21	989	37136

Annexure VIII.2 contd.

	HSD sale HCV(truk) DEL (k.litre)	HSD sale HCV(bus) DEL (k.litre)	HSD sale LCV(HSD) DEL (k.litre)	HSD sale DEL 3 w (k.litre)	HSD sale DEL cars (k.litre)	HSD sale DEL jeeps (k.litre)	HSD sale DEL Total (k.litre)
1990/91	409163	224474	71035	0	280	2953	707904
1991/92	422679	234428	76462	0	309	3232	737110
1992/93	437022	245037	83251	0	340	3557	769207
1993/94	452133	256285	91286	0	376	3950	804030
1994/95	467960	268161	100456	0	415	4409	841402
1995/96	484451	280650	110658	0	427	4934	881120
1996/97	501554	293740	121794	0	467	5522	923078
1997/98	519224	307418	133772	0	509	6173	967097
1998/99	537413	321672	146504	0	555	6927	1013070
1999/00	556079	336489	159908	0	605	7779	1060859
2000/01	575178	351857	173907	0	657	8730	1110329
2001/02	594672	367765	188428	0	713	9777	1161355
2002/03	614522	384202	203402	0	773	10917	1213816
2003/04	634690	401156	218766	0	836	12209	1267657
2004/05	655142	418617	234458	0	903	13649	1322768

	HSD sale HCV(truk) NR (k.litre)	HSD sale HCV(bus) NR (k.litre)	HSD sale LCV(HSD) NR (k.litre)	HSD sale NR 3 w (k.litre)	HSD sale NR cars (k.litre)	HSD sale NR jeeps (k.litre)	HSD sale NR Total (k.litre)
1990/91	3668078	953155	858354	19033	287	187330	5686236
1991/92	3891564	1011589	955950	21274	316	204048	6084740
1992/93	4127172	1073372	1073686	23802	348	223459	6521839
1993/94	4374490	1138429	1210130	26743	385	246910	6997085
1994/95	4633118	1206685	1363935	30065	425	274257	7508484
1995/96	4902668	1278068	1533835	33738	437	305364	8054110
1996/97	5182766	1352508	1718637	37735	478	340097	8632219
1997/98	5473046	1429935	1917222	42028	521	378326	9241077
1998/99	5773156	1510281	2128537	46796	568	422382	9881720
1999/00	6082753	1593481	2351595	52001	619	472053	10552501
2000/01	6401505	1679469	2585467	57608	672	527134	11251856
2001/02	6729090	1768182	2829284	63585	730	587429	11978299
2002/03	7065196	1859558	3082229	69900	791	652745	12730418
2003/04	7409520	1953536	3343538	76778	855	726410	13510636
2004/05	7761769	2050057	3612493	84174	924	808109	14317525

Annexure VIII.3 : LVP Scenario -- Projections of Sales and Registrations of HSD using Vehicles

	sales HCV(truk) HAR	sales HCV(bus) HAR	sales LCV(HSD) HAR	regist HCV(truk) HAR	regist* HCV(bus) HAR	regist* LCV(HSD) HAR	regist HAR 3 w	regist HAR cars	regist HAR jeeps
1988-89				17510	5242	9585	6950	16800	5350
1989-90	1481	721	1196	18621	5575	10579	7724	17248	5650
1990-91	1548	753	1360	19776	5920	11715	8641	18949	6134
1991-92	1644	801	1731	21003	6288	13199	9709	20870	6715
1992-93	1741	848	2102	22301	6676	15022	10920	23021	7390
1993-94	1838	895	2472	23668	7086	17177	12334	25412	8207
1994-95	1934	942	2843	25103	7515	19658	13939	28054	9161
1995-96	1983	965	3029	26556	7950	22272	15587	28784	10169
1996-97	2031	989	3214	28027	8391	25016	17276	31248	11231
1997-98	2080	1012	3400	29515	8836	27888	19003	33817	12345
1998-99	2128	1036	3585	31020	9287	30884	20767	36494	13511
1999-00	2176	1060	3770	32542	9742	34003	22565	39277	14728
2000-01	2200	1071	3863	34056	10195	37149	24327	42112	15953
2001-02	2225	1083	3956	35562	10646	40321	26055	44997	17186
2002-03	2249	1095	4049	37060	11095	43518	27751	47932	18427
2003-04	2273	1107	4141	38551	11541	46741	29417	50917	19677
2004-05	2297	1118	4234	40035	11985	49989	31054	53952	20935

	sales HCV(truk) HP	sales HCV(bus) HP	sales LCV(HSD) HP	regist HCV(truk) HP	regist* HCV(bus) HP	regist* LCV(HSD) HP	regist HP 3 w	regist HP cars	regist HP jeeps
1988-89				0	2790	10596	1040	4250	4400
1989-90	498	239	154	0	2889	11024	1127	4728	4850
1990-91	520	249	175	0	2994	11486	1261	5195	5266
1991-92	553	265	223	0	3107	12018	1417	5721	5765
1992-93	586	280	270	0	3228	12619	1594	6311	6344
1993-94	618	296	318	0	3356	13288	1800	6967	7045
1994-95	651	312	366	0	3492	14022	2034	7691	7864
1995-96	667	319	390	0	3631	14777	2275	7891	8730
1996-97	683	327	414	0	3771	15557	2521	8566	9641
1997-98	699	335	437	0	3914	16360	2773	9271	10598
1998-99	716	343	461	0	4059	17186	3031	10004	11599
1999-00	732	351	485	0	4207	18034	3293	10768	12644
2000-01	740	354	497	0	4353	18885	3550	11545	13695
2001-02	748	358	509	0	4500	19737	3802	12336	14754
2002-03	756	362	521	0	4645	20592	4050	13140	15819
2003-04	764	366	533	0	4790	21448	4293	13959	16872
2004-05	773	370	545	0	4935	22306	4532	14791	17972

Annexure VIII.3 contd.

	sales HCV(truk) JK	sales HCV(bus) JK	sales LCV(HSD) JK	regist HCV(truk) JK	regist* HCV(bus) JK	regist* LCV(HSD) JK	regist JK 3 w	regist JK cars	regist JK jeeps
1988-89				0	3461	15326	3070	15300	4750
1989-90	1184	410	446	0	3710	16546	3555	16447	3212
1990-91	1237	428	507	0	3969	17843	3977	18069	5659
1991-92	1314	455	645	0	4243	19302	4469	19901	6194
1992-93	1392	482	783	0	4533	20919	5026	21952	6817
1993-94	1469	509	921	0	4837	22691	5677	24232	7570
1994-95	1546	535	1059	0	5156	24614	6416	26751	8451
1995-96	1585	549	1128	0	5479	26287	7174	27446	9381
1996-97	1624	562	1197	0	5806	28011	7952	29796	10360
1997-98	1662	576	1266	0	6136	29786	8747	32246	11388
1998-99	1701	589	1336	0	6470	31610	9559	34798	12464
1999-00	1740	602	1405	0	6807	33483	10386	37453	13586
2000-01	1759	609	1439	0	7143	35360	11197	40155	14716
2001-02	1778	616	1474	0	7476	37241	11993	42907	15853
2002-03	1798	622	1508	0	7808	39126	12773	45706	16998
2003-04	1817	629	1543	0	8138	41015	13540	48552	18151
2004-05	1836	636	1577	0	8467	42907	14294	51445	19312

	sales HCV(truk) PUN	sales HCV(bus) PUN	sales LCV(HSD) PUN	regist HCV(truk) PUN	regist* HCV(bus) PUN	regist* LCV(HSD) PUN	regist PUN 3 w	regist PUN cars	regist PUN jeeps
1988-89				22971	8731	12574	14050	50900	9550
1989-90	1943	946	1569	24430	9286	13878	16589	54410	10509
1990-91	2030	988	1784	25944	9861	15369	18558	59776	11409
1991-92	2157	1050	2270	27554	10473	17315	20853	65836	12489
1992-93	2284	1112	2757	29257	11120	19707	23454	72621	13745
1993-94	2411	1174	3243	31050	11802	22534	26490	80164	15264
1994-95	2538	1236	3730	32933	12518	25789	29936	88497	17038
1995-96	2601	1266	3973	34839	13242	29218	33476	90799	18914
1996-97	2665	1297	4216	36769	13976	32818	37103	98571	20889
1997-98	2728	1328	4460	38721	14718	36585	40813	106677	22961
1998-99	2792	1359	4703	40695	15468	40516	44601	115120	25130
1999-00	2855	1390	4946	42692	16227	44607	48463	123901	27393
2000-01	2887	1405	5068	44677	16982	48734	52247	132843	29671
2001-02	2918	1421	5189	46653	17733	52895	55958	141944	31964
2002-03	2950	1436	5311	48619	18480	57090	59600	151204	34273
2003-04	2982	1452	5433	50575	19224	61318	63178	160620	36597
2004-05	3014	1467	5554	52521	19964	65578	66695	170193	38937

Annexure VIII.3 contd.

	sales HCV(truk) RAJ	sales HCV(bus) RAJ	sales LCV(HSD) RAJ	regist HCV(truk) RAJ	regist$ HCV(bus) RAJ	regist$ LCV(HSD) RAJ	regist RAJ 3 w	regist RAJ cars	regist RAJ jeeps
1988-89				32716	6791	10102	13080	28400	29800
1989-90	2121	642	966	34146	7088	10855	13261	30400	32953
1990-91	2216	671	1098	35642	7399	11725	14835	33398	35777
1991-92	2354	713	1398	37244	7731	12875	16669	36784	39164
1992-93	2493	755	1697	38951	8086	14301	18748	40574	43103
1993-94	2631	797	1997	40760	8461	15996	21175	44789	47864
1994-95	2770	839	2296	42670	8858	17955	23930	49445	53429
1995-96	2839	860	2446	44608	9260	20022	26759	50731	59311
1996-97	2908	881	2596	46575	9668	22196	29659	55073	65503
1997-98	2977	902	2746	48570	10082	24473	32625	59602	72002
1998-99	3047	923	2896	50592	10502	26852	35653	64319	78802
1999-00	3116	944	3045	52640	10927	29331	38739	69225	85901
2000-01	3151	954	3120	54680	11351	31833	41764	74221	93044
2001-02	3185	965	3195	56711	11772	34356	44731	79306	100234
2002-03	3220	975	3270	58735	12192	36901	47642	84480	107473
2003-04	3254	986	3345	60750	12611	39467	50502	89741	114761
2004-05	3289	996	3420	62757	13027	42054	53313	95089	122101

	sales HCV(truk) UP	sales HCV(bus) UP	sales LCV(HSD) UP	regist HCV(truk) UP	regist$ HCV(bus) UP	regist$ LCV(HSD) UP	regist UP 3 w	regist UP cars	regist UP jeeps
1988-89				41957	12022	21229	18750	87000	26700
1989-90	4756	2261	3578	45828	13131	24332	20249	94379	28686
1990-91	4969	2363	4068	49830	14277	27854	22652	103686	31144
1991-92	5279	2510	5177	54058	15489	32403	25453	114199	34092
1992-93	5590	2658	6286	58507	16764	37956	28628	125968	37522
1993-94	5901	2806	7396	63173	18101	44493	32334	139052	41666
1994-95	6211	2953	8505	68052	19498	51993	36540	153506	46510
1995-96	6366	3027	9060	72982	20911	59885	40861	157498	51630
1996-97	6522	3101	9614	77964	22339	68161	45289	170981	57020
1997-98	6677	3175	10169	82996	23780	76812	49817	185041	62678
1998-99	6832	3249	10723	88077	25236	85832	54441	199686	68598
1999-00	6988	3322	11278	93206	26706	95211	59154	214917	74777
2000-01	7065	3359	11555	98305	28167	104668	63773	230428	80995
2001-02	7143	3396	11833	103373	29619	114200	68303	246215	87254
2002-03	7220	3433	12110	108413	31063	123807	72749	262276	93555
2003-04	7298	3470	12387	113423	32499	133485	77116	278610	99900
2004-05	7376	3507	12665	118406	33926	143235	81408	295214	106289

Annexure VIII.3 contd.

	sales HCV(truk) UP/HILL	sales HCV(bus) UP/HILL	sales LCV(HSD) UP/HILL	regist HCV(truk) UP/HILL	regist! HCV(bus) UP/HILL	regist! LCV(HSD) UP/HILL	regist UP/HILL 3 w	regist UP/HILL cars	regist UP/HILL jeeps
1988-89				0	500	883	780	3617	1110
1989-90	0	94	149	0	546	1012	842	3924	1193
1990-91	0	98	169	0	594	1159	942	4311	1295
1991-92	0	104	215	0	644	1348	1059	4748	1417
1992-93	0	111	262	0	697	1579	1191	5237	1560
1993-94	0	117	308	0	753	1851	1345	5781	1732
1994-95	0	123	354	0	811	2163	1520	6382	1934
1995-96	0	126	377	0	870	2491	1700	6548	2146
1996-97	0	129	400	0	929	2835	1884	7108	2371
1997-98	0	132	423	0	989	3195	2072	7693	2606
1998-99	0	135	446	0	1050	3571	2265	8302	2852
1999-00	0	138	469	0	1111	3961	2461	8935	3109
2000-01	0	140	481	0	1172	4354	2653	9580	3367
2001-02	0	141	492	0	1232	4751	2841	10236	3627
2002-03	0	143	504	0	1292	5150	3026	10904	3889
2003-04	0	144	515	0	1352	5553	3208	11583	4153
2004-05	0	146	527	0	1411	5958	3387	12273	4419

	sales HCV(truk) UP/OTH	sales HCV(bus) UP/OTH	sales LCV(HSD) UP/OTH	regist HCV(truk) UP/OTH	regist! HCV(bus) UP/OTH	regist! LCV(HSD) UP/OTH	regist UP/OTH 3 w	regist UP/OTH cars	regist UP/OTH jeeps
1988-89				32199	8842	15614	13791	63992	19639
1989-90	3650	1663	2632	35169	9658	17896	14894	69420	21100
1990-91	3813	1738	2992	38241	10501	20487	16661	76263	22908
1991-92	4052	1846	3808	41485	11392	23832	18721	83998	25076
1992-93	4290	1955	4623	44900	12330	27917	21056	92654	27599
1993-94	4528	2064	5439	48481	13313	32725	23782	102278	30647
1994-95	4767	2172	6255	52225	14341	38241	26876	112910	34210
1995-96	4886	2226	6663	56008	15380	44045	30054	115846	37976
1996-97	5005	2281	7071	59832	16430	50132	33311	125763	41941
1997-98	5124	2335	7479	63693	17490	56495	36642	136105	46102
1998-99	5243	2389	7887	67593	18561	63129	40042	146877	50456
1999-00	5363	2444	8295	71529	19642	70028	43509	158080	55002
2000-01	5422	2471	8499	75442	20717	76983	46906	169409	59575
2001-02	5482	2498	8703	79332	21785	83994	50238	181101	64179
2002-03	5541	2525	8907	83199	22847	91059	53508	192914	68814
2003-04	5601	2552	9111	87045	23903	98178	56720	204929	73481
2004-05	5660	2579	9315	90868	24953	105349	59878	217142	78180

Annexure VIII.3 contd.

	sales HCV(truk) UP/WEST	sales HCV(bus) UP/WEST	sales LCV(HSD) UP/WEST	regist HCV(truk) UP/WEST	regist* HCV(bus) UP/WEST	regist* LCV(HSD) UP/WEST	regist UP/WEST 3 w	regist UP/WEST cars	regist UP/WEST jeeps
1988-89				9758	2680	4732	4179	19391	5951
1989-90	1106	504	798	10658	2927	5424	4513	21036	6394
1990-91	1156	527	907	11589	3182	6209	5049	23110	6942
1991-92	1228	560	1154	12573	3452	7223	5673	25453	7599
1992-93	1300	592	1401	13607	3737	8460	6381	28076	8363
1993-94	1372	625	1648	14693	4035	9918	7207	30993	9287
1994-95	1444	658	1896	15827	4346	11589	8144	34214	10366
1995-96	1481	675	2019	16974	4661	13348	9107	35104	11508
1996-97	1517	691	2143	18132	4979	15193	10094	38109	12709
1997-98	1553	708	2267	19302	5301	17122	11103	41243	13970
1998-99	1589	724	2390	20484	5625	19132	12134	44507	15289
1999-00	1625	741	2514	21677	5953	21223	13184	47902	16667
2000-01	1643	749	2576	22863	6278	23331	14214	51359	18053
2001-02	1661	757	2638	24041	6602	25456	15223	54878	19448
2002-03	1679	765	2699	25213	6924	27597	16214	58457	20852
2003-04	1697	774	2761	26378	7244	29754	17188	62098	22266
2004-05	1715	782	2823	27537	7562	31928	18144	65799	23690

	sales HCV(truk) CHD	sales HCV(bus) CHD	sales LCV(HSD) CHD	regist HCV(truk) CHD	regist* HCV(bus) CHD	regist* LCV(HSD) CHD	regist CHD 3 w	regist CHD cars	regist CHD jeeps
1988-89				3527	1375	1931	2560	26100	2300
1989-90	298	145	241	3751	1462	2131	2760	26173	2277
1990-91	312	152	274	3983	1553	2360	3088	28754	2472
1991-92	331	161	349	4231	1649	2659	3469	31670	2706
1992-93	351	171	423	4492	1751	3026	3902	34933	2978
1993-94	370	180	498	4767	1859	3460	4407	38562	3307
1994-95	390	190	573	5056	1971	3960	4981	42570	3691
1995-96	399	194	610	5349	2085	4487	5570	43678	4098
1996-97	409	199	648	5645	2201	5039	6173	47416	4525
1997-98	419	204	685	5945	2318	5618	6790	51316	4974
1998-99	429	209	722	6248	2436	6222	7421	55377	5444
1999-00	438	213	760	6555	2555	6850	8063	59601	5935
2000-01	443	216	778	6860	2674	7484	8693	63902	6428
2001-02	448	218	797	7163	2793	8123	9310	68280	6925
2002-03	453	221	816	7465	2910	8767	9916	72734	7425
2003-04	458	223	834	7765	3027	9416	10512	77264	7929
2004-05	463	225	853	8064	3144	10071	11097	81869	8436

Annexure VIII.3 contd.

	sales HCV(truk) DEL	sales HCV(bus) DEL	sales LCV(HSD) DEL	regist HCV(truk) DEL	regist! HCV(bus) DEL	regist! LCV(HSD) DEL	regist DEL 3 w	regist DEL cars	regist DEL jeeps
1988-89				39021	16224	28994	43240	284200	14700
1989-90	2503	1313	2744	40701	16922	31126	47931	304223	14722
1990-91	2615	1372	3119	42458	17652	33589	53619	334225	15983
1991-92	2779	1458	3970	44341	18435	36850	60248	368111	17496
1992-93	2942	1544	4821	46347	19269	40893	67763	406047	19256
1993-94	3106	1629	5671	48475	20154	45702	76535	448224	21383
1994-95	3269	1715	6522	50721	21088	51260	86493	494815	23869
1995-96	3351	1758	6947	53001	22036	57126	96720	507685	26497
1996-97	3432	1801	7373	55316	22998	63293	107200	551143	29263
1997-98	3514	1844	7798	57663	23974	69756	117920	596467	32166
1998-99	3596	1887	8224	60042	24963	76508	128864	643671	33204
1999-00	3678	1929	8649	62453	25966	83542	140021	692769	38376
2000-01	3719	1951	8862	64853	26964	90641	150954	742766	41567
2001-02	3759	1972	9074	67244	27958	97803	161676	793654	44779
2002-03	3800	1994	9287	69626	28948	105026	172200	845427	48013
2003-04	3841	2015	9500	71998	29934	112310	182537	898077	51269
2004-05	3882	2037	9712	74361	30916	119652	192698	951600	54548

	sales HCV(truk) NR	sales HCV(bus) NR	sales LCV(HSD) NR	regist HCV(truk) NR	regist! HCV(bus) NR	regist! LCV(HSD) NR	regist NR 3 w	regist NR cars	regist NR jeeps
1988-89				157702	56636	110337	102740	512950	97550
1989-90	14785	6678	10895	167477	60064	120471	113197	548009	104858
1990-91	15447	6977	12384	177633	63626	131941	126632	602052	113045
1991-92	16412	7413	15762	188430	67416	146621	142287	663092	124622
1992-93	17378	7849	19139	199855	71427	164443	160034	731427	137157
1993-94	18343	8285	22517	211894	75656	185341	180752	807403	152304
1994-95	19309	8721	25894	224534	80097	209250	204269	891328	170014
1995-96	19791	8939	27583	237336	84595	234073	228421	914511	188729
1996-97	20274	9157	29272	250296	89150	260091	253173	992794	208433
1997-98	20757	9375	30961	263410	93759	287278	278489	1074438	229112
1998-99	21240	9593	32650	276674	98422	315609	304336	1159469	250752
1999-00	21722	9812	34338	290087	103138	345062	330685	1247910	273339
2000-01	21964	9921	35183	303431	107829	374752	356505	1337972	296070
2001-02	22205	10030	36027	316707	112497	404673	381828	1429639	318956
2002-03	22446	10139	36871	329917	117142	434826	406682	1522099	341983
2003-04	22688	10248	37716	343062	121765	465200	431094	1617740	363173
2004-05	22929	10357	38560	356143	126365	495793	455091	1714151	388534

Annexure VIII.4 : LVP Scenario -- Projections of HSD Sales for Road Transport

	HSD sale HCV(truk) HAR (k.litre)	HSD sale HCV(bus) HAR (k.litre)	HSD sale LCV(HSD) HAR (k.litre)	HSD sale HAR 3 w (k.litre)	HSD sale HAR cars (k.litre)	HSD sale HAR jeeps (k.litre)	HSD sale HAR Total (k.litre)
1990/91	341789	103613	75076	1249	0	11119	532846
1991/92	362229	110007	84484	1404	0	12070	570193
1992/93	383800	116767	96042	1579	0	13173	611361
1993/94	406470	123886	109695	1783	0	14506	656339
1994/95	430205	131355	125392	2015	0	16057	705024
1995/96	454147	138915	141900	2253	0	17676	754891
1996/97	478289	146562	159198	2498	0	19358	805905
1997/98	502621	154295	177267	2747	0	21101	858031
1998/99	527137	162111	196086	3002	0	22901	911238
1999/00	551829	170009	215636	3262	0	24756	965493
2000/01	576280	177861	235311	3517	0	26591	1019560
2001/02	600494	185667	255106	3767	0	28406	1073441
2002/03	624476	193429	275018	4012	0	30204	1127138
2003/04	648228	201147	295043	4253	0	31983	1180653
2004/05	671756	208821	315176	4490	0	33744	1233987

	HSD sale HCV(truk) HP (k.litre)	HSD sale HCV(bus) HP (k.litre)	HSD sale LCV(HSD) HF (k.litre)	HSD sale HP 3 w (k.litre)	HSD sale HP cars (k.litre)	HSD sale HP jeeps (k.litre)	HSD sale HP Total (k.litre)
1990/91	0	28083	62640	0	0	2997	93720
1991/92	0	29141	65314	0	0	3261	97717
1992/93	0	30273	68342	0	0	3569	102184
1993/94	0	31479	71711	0	0	3940	107130
1994/95	0	32756	75410	0	0	4373	112539
1995/96	0	34055	79196	0	0	4826	118077
1996/97	0	35375	83084	0	0	5299	123757
1997/98	0	36715	87068	0	0	5791	129574
1998/99	0	38076	91145	0	0	6302	135523
1999/00	0	39457	95312	0	0	6829	141598
2000/01	0	40833	99459	0	0	7355	147647
2001/02	0	42204	103587	0	0	7877	153668
2002/03	0	43570	107696	0	0	8397	159663
2003/04	0	44932	111784	0	0	8915	165631
2004/05	0	46289	115853	0	0	9430	171573

Annexure VIII.4 contd.

	HSD sale HCV(truk) JK (k.litre)	HSD sale HCV(bus) JK (k.litre)	HSD sale LCV(HSD) JK (k.litre)	HSD sale JK 3 w (k.litre)	HSD sale JK cars (k.litre)	HSD sale JK jeeps (k.litre)	HSD sale JK Total (k.litre)
1990/91	0	29349	76719	0	0	2329	108397
1991/92	0	31377	82702	0	0	2535	116614
1992/93	0	33518	89318	0	0	2774	125609
1993/94	0	35769	96545	0	0	3062	135377
1994/95	0	38129	104364	0	0	3399	145891
1995/96	0	40517	111067	0	0	3751	155335
1996/97	0	42932	117940	0	0	4119	164991
1997/98	0	45374	124977	0	0	4501	174852
1998/99	0	47843	132171	0	0	4898	184911
1999/00	0	50337	139515	0	0	5308	195160
2000/01	0	52817	146823	0	0	5717	205357
2001/02	0	55285	154095	0	0	6123	215502
2002/03	0	57739	161330	0	0	6527	225595
2003/04	0	60180	168528	0	0	6929	235637
2004/05	0	62608	175689	0	0	7330	245627

	HSD sale HCV(truk) PUN (k.litre)	HSD sale HCV(bus) PUN (k.litre)	HSD sale LCV(HSD) PUN (k.litre)	HSD sale PUN 3 w (k.litre)	HSD sale PUN cars (k.litre)	HSD sale PUN jeeps (k.litre)	HSD sale PUN Total (k.litre)
1990/91	539484	206354	119790	3392	0	25669	894690
1991/92	571746	219087	134801	3811	0	27865	957310
1992/93	605793	232551	153241	4287	0	30411	1026283
1993/94	641573	246728	175025	4842	0	33488	1101656
1994/95	679035	261604	200069	5472	0	37070	1183251
1995/96	716825	276659	226408	6119	0	40807	1266818
1996/97	754929	291889	254008	6782	0	44691	1352299
1997/98	793334	307289	282837	7460	0	48715	1439635
1998/99	832029	322856	312863	8152	0	52871	1528772
1999/00	871001	338586	344055	8858	0	57153	1619653
2000/01	909594	354223	375446	9550	0	61389	1710202
2001/02	947813	369770	407030	10228	0	65580	1800421
2002/03	985664	385227	438800	10894	0	69729	1890315
2003/04	1023154	400598	470749	11548	0	73837	1979886
2004/05	1060289	415883	502872	12191	0	77903	2069138

Annexure VIII.4 contd.

	HSD sale HCV(truk) RAJ (k.litre)	HSD sale HCV(bus) RAJ (k.litre)	HSD sale LCV(HSD) RAJ (k.litre)	HSD sale RAJ 3 w (k.litre)	HSD sale RAJ cars (k.litre)	HSD sale RAJ jeeps (k.litre)	HSD sale RAJ Total (k.litre)
1990/91	847160	101063	63662	10734	0	48184	1070803
1991/92	875601	105606	69512	11967	0	52603	1115290
1992/93	905757	110446	76772	13354	0	57738	1164067
1993/94	937509	115576	85385	14965	0	63941	1217377
1994/95	970744	120991	95298	16781	0	71183	1274996
1995/96	1003795	126488	105668	18618	0	78805	1333374
1996/97	1036642	132066	116474	20475	0	86797	1392453
1997/98	1069265	137722	127697	22346	0	95151	1452180
1998/99	1101646	143455	139316	24230	0	103857	1512502
1999/00	1133767	149263	151312	26122	0	112906	1573370
2000/01	1164875	155047	163285	27942	0	121964	1633112
2001/02	1194993	160807	175229	29693	0	131034	1691756
2002/03	1224145	166544	187142	31379	0	140117	1749327
2003/04	1252355	172257	199021	33003	0	149215	1805851
2004/05	1279644	177949	210863	34568	0	158330	1861353

	HSD sale HCV(truk) UP (k.litre)	HSD sale HCV(bus) UP (k.litre)	HSD sale LCV(HSD) UP (k.litre)	HSD sale UP 3 w (k.litre)	HSD sale UP cars (k.litre)	HSD sale UP jeeps (k.litre)	HSD sale UP Total (k.litre)
1990/91	1520147	254902	388088	3657	0	93866	2260660
1991/92	1648451	276296	441188	4092	0	102247	2472275
1992/93	1783397	298785	505062	4582	0	111979	2703805
1993/94	1924833	322341	578623	5153	0	123736	2954686
1994/95	2072613	346938	660857	5798	0	137447	3223653
1995/96	2221868	371761	743986	6455	0	151828	3495898
1996/97	2372560	396803	827727	7124	0	166857	3771071
1997/98	2524654	422057	911826	7802	0	182512	4048851
1998/99	2678116	447518	996048	8489	0	198771	4328943
1999/00	2832914	473179	1080178	9184	0	215615	4611070
2000/01	2986656	498642	1160966	9858	0	232401	4888523
2001/02	3139363	523909	1238501	10513	0	249133	5161419
2002/03	3291055	548985	1312868	11149	0	265817	5429874
2003/04	3441753	573874	1384154	11767	0	282454	5694001
2004/05	3591476	598578	1452444	12369	0	299048	5953913

Annexure VIII.4 contd.

	HSD sale HCV(truk) UP/HILL (k.litre)	HSD sale HCV(bus) UP/HILL (k.litre)	HSD sale LCV(HSD) UP/HILL (k.litre)	HSD sale UP/HILL 3 w (k.litre)	HSD sale UP/HILL cars (k.litre)	HSD sale UP/HILL jeeps (k.litre)	HSD sale UP/HILL Total (k.litre)
1990/91	0	10071	11075	58	0	4531	25736
1991/92	0	10925	12839	65	0	4932	28762
1992/93	0	11825	14987	73	0	5396	32282
1993/94	0	12768	17508	83	0	5958	36316
1994/95	0	13754	20387	94	0	6612	40847
1995/96	0	14750	23400	105	0	7298	45553
1996/97	0	15757	26541	116	0	8013	50427
1997/98	0	16774	29806	128	0	8757	55465
1998/99	0	17801	33190	140	0	9529	60659
1999/00	0	18837	36688	152	0	10327	66005
2000/01	0	19868	40192	164	0	11121	71345
2001/02	0	20892	43700	175	0	11911	76678
2002/03	0	21911	47211	187	0	12698	82006
2003/04	0	22923	50724	198	0	13481	87326
2004/05	0	23930	54240	209	0	14260	92639

	HSD sale HCV(truk) UP/OTH (k.litre)	HSD sale HCV(bus) UP/OTH (k.litre)	HSD sale LCV(HSD) UP/OTH (k.litre)	HSD sale UP/OTH 3 w (k.litre)	HSD sale UP/OTH cars (k.litre)	HSD sale UP/OTH jeeps (k.litre)	HSD sale UP/OTH Total (k.litre)
1990/91	1386839	206835	351696	3122	0	82082	2030573
1991/92	1504138	224164	398932	3490	0	89443	2220166
1992/93	1627535	242376	455655	3905	0	97990	2427461
1993/94	1756896	261449	520815	4388	0	108317	2651864
1994/95	1892090	281360	593432	4933	0	120361	2892176
1995/96	2028675	301450	666470	5489	0	133001	3135084
1996/97	2166616	321710	739664	6052	0	146217	3380259
1997/98	2305882	342138	812770	6624	0	159991	3627404
1998/99	2446442	362727	885566	7201	0	174305	3876241
1999/00	2588267	383473	957850	7785	0	189140	4126515
2000/01	2729171	404052	1026738	8350	0	203935	4372247
2001/02	2869174	424468	1092320	8897	0	218693	4613553
2002/03	3008294	444722	1154685	9428	0	233418	4850548
2003/04	3146549	464819	1213921	9943	0	248111	5083343
2004/05	3283955	484761	1270116	10443	0	262777	5312052

Annexure VIII.4 contd.

	HSD sale HCV(truk) UP/WEST (k.litre)	HSD sale HCV(bus) UP/WEST (k.litre)	HSD sale LCV(HSD) UP/WEST (k.litre)	HSD sale UP/WEST 3 w (k.litre)	HSD sale UP/WEST cars (k.litre)	HSD sale UP/WEST jeeps (k.litre)	HSD sale UP/WEST Total (k.litre)
1990/91	133308	37996	25317	478	0	7253	204351
1991/92	144314	41207	29417	537	0	7873	223348
1992/93	155862	44584	34419	604	0	8592	244062
1993/94	167937	48125	40300	682	0	9462	266506
1994/95	180524	51824	47038	771	0	10474	290630
1995/96	193193	55562	54115	862	0	11530	315261
1996/97	205944	59336	61522	955	0	12627	340384
1997/98	218772	63145	69251	1051	0	13764	365983
1998/99	231674	66990	77293	1148	0	14938	392043
1999/00	244648	70869	85639	1247	0	16148	418551
2000/01	257485	74722	94036	1345	0	17345	444932
2001/02	270188	78549	102481	1440	0	18529	471188
2002/03	282761	82352	110972	1534	0	19701	497321
2003/04	295204	86131	119509	1626	0	20862	523332
2004/05	307521	89886	128088	1717	0	22011	549223

	HSD sale HCV(truk) CHD (k.litre)	HSD sale HCV(bus) CHD (k.litre)	HSD sale LCV(HSD) CHD (k.litre)	HSD sale CHD 3 w (k.litre)	HSD sale CHD cars (k.litre)	HSD sale CHD jeeps (k.litre)	HSD sale CHD Total (k.litre)
1990/91	10335	5317	1344	0	6	214	17216
1991/92	10857	5647	1485	0	7	234	18231
1992/93	11403	5996	1659	0	8	258	19323
1993/94	11971	6363	1861	0	9	286	20490
1994/95	12560	6749	2089	0	10	320	21727
1995/96	13143	7140	2323	0	10	355	22970
1996/97	13721	7535	2560	0	11	392	24218
1997/98	14293	7935	2800	0	12	431	25470
1998/99	14859	8340	3042	0	13	471	26724
1999/00	15419	8749	3286	0	13	514	27981
2000/01	15961	9156	3522	0	14	557	29210
2001/02	16487	9561	3751	0	15	600	30413
2002/03	16995	9964	3972	0	16	643	31590
2003/04	17488	10364	4186	0	17	686	32742
2004/05	17964	10763	4392	0	18	730	33868

Annexure VIII.4 contd.

	HSD sale HCV(truk) DEL (k.litre)	HSD sale HCV(bus) DEL (k.litre)	HSD sale LCV(HSD) DEL (k.litre)	HSD sale DEL 3 w (k.litre)	HSD sale DEL cars (k.litre)	HSD sale DEL jeeps (k.litre)	HSD sale DEL Total (k.litre)
1990/91	409163	224474	71035	0	280	2953	707904
1991/92	422679	234428	76462	0	309	3232	737110
1992/93	437022	245037	83251	0	340	3557	769207
1993/94	452133	256285	91286	0	376	3950	804030
1994/95	467960	268161	100456	0	415	4409	841402
1995/96	483705	280218	109840	0	426	4895	879084
1996/97	499356	292453	119404	0	462	5406	917081
1997/98	514906	304862	129114	0	500	5942	955325
1998/99	530345	317441	138940	0	540	6503	993770
1999/00	545664	330187	148854	0	581	7089	1032375
2000/01	560503	342880	158457	0	623	7679	1070141
2001/02	574873	355521	167752	0	666	8272	1107084
2002/03	588784	368111	176744	0	709	8869	1143218
2003/04	602249	380652	185437	0	753	9471	1178562
2004/05	615276	393144	193835	0	798	10077	1213130

	HSD sale HCV(truk) NR (k.litre)	HSD sale HCV(bus) NR (k.litre)	HSD sale LCV(HSD) NR (k.litre)	HSD sale NR 3 w (k.litre)	HSD sale NR cars (k.litre)	HSD sale NR jeeps (k.litre)	HSD sale NR Total (k.litre)
1990/91	3668078	953155	858354	19033	287	187330	5686236
1991/92	3891564	1011589	955950	21274	316	204048	6084740
1992/93	4127172	1073372	1073686	23802	348	223459	6521839
1993/94	4374490	1138429	1210130	26743	385	246910	6997085
1994/95	4633118	1206685	1363935	30065	425	274257	7508484
1995/96	4893483	1275753	1520388	33445	436	302942	8026447
1996/97	5155496	1345614	1680395	36877	473	332919	8551775
1997/98	5419073	1416249	1843585	40355	512	364144	9083919
1998/99	5684132	1487639	2009611	43873	552	396575	9622382
1999/00	5950595	1559767	2178148	47426	594	430170	10166700
2000/01	6213869	1631458	2343269	50867	637	463651	10703751
2001/02	6474022	1702723	2505051	54201	681	497026	11233704
2002/03	6731120	1773569	2663569	57433	725	530304	11756721
2003/04	6985227	1844003	2818902	60570	771	563490	12272963
2004/05	7236404	1914036	2971125	63617	816	596592	12782590

Annexure IX.1 : Projections of Gross and Net Cropped Area

	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/OTH	CHD	DEL	NR
Gross Cropped Area ('000 ha)												
1989/90	5696	986	1025	7100	18662	25425	1249	12079	12098	4	93	58992
1990/91	5724	991	1031	7136	18755	25553	1255	12139	12158	4	93	59287
1991/92	5753	996	1036	7172	18849	25680	1261	12200	12219	4	94	59583
1992/93	5781	1001	1041	7207	18943	25809	1268	12261	12280	4	94	59881
1993/94	5810	1006	1046	7244	19038	25938	1274	12322	12342	4	95	60180
1994/95	5839	1011	1051	7280	19133	26067	1280	12384	12403	4	95	60481
1995/96	5869	1016	1057	7316	19228	26198	1287	12446	12465	4	96	60784
1996/97	5898	1021	1062	7353	19325	26329	1293	12508	12528	4	96	61088
1997/98	5927	1026	1067	7389	19421	26460	1300	12570	12590	4	97	61393
1998/99	5957	1031	1073	7426	19518	26593	1306	12633	12653	4	97	61700
1999/00	5987	1037	1078	7464	19616	26726	1313	12696	12717	4	98	62008
2000/01	6017	1042	1083	7501	19714	26859	1319	12760	12780	4	98	62319
2001/02	6047	1047	1089	7538	19813	26994	1326	12824	12844	4	99	62630
2002/03	6077	1052	1094	7576	19912	27129	1333	12888	12908	4	99	62943
2003/04	6108	1058	1100	7614	20011	27264	1339	12952	12973	4	100	63258
2004/05	6138	1063	1105	7652	20111	27401	1346	13017	13038	4	100	63574
Net Sown Area ('000 ha)												
1989/90	3588	574	720	4168	15541	17115	745	7683	8687	3	60	58884
1990/91	3590	575	720	4170	15549	17123	745	7687	8691	3	61	58914
1991/92	3591	575	721	4172	15556	17132	745	7691	8695	3	61	58943
1992/93	3593	575	721	4174	15564	17140	746	7695	8700	3	61	58973
1993/94	3595	576	721	4177	15572	17149	746	7699	8704	3	61	59002
1994/95	3597	576	722	4179	15580	17158	747	7703	8709	3	61	59032
1995/96	3599	576	722	4181	15587	17166	747	7706	8713	3	61	59061
1996/97	3600	576	722	4183	15595	17175	747	7710	8717	3	61	59091
1997/98	3602	577	723	4185	15603	17183	748	7714	8722	3	61	59120
1998/99	3604	577	723	4187	15611	17192	748	7718	8726	3	61	59150
1999/00	3606	577	724	4189	15619	17201	748	7722	8730	3	61	59179
2000/01	3608	578	724	4191	15626	17209	749	7726	8735	3	61	59209
2001/02	3609	578	724	4193	15634	17218	749	7730	8739	3	61	59239
2002/03	3611	578	725	4195	15642	17226	750	7733	8743	3	61	59268
2003/04	3613	578	725	4197	15650	17235	750	7737	8748	3	61	59298
2004/05	3615	579	725	4200	15658	17244	750	7741	8752	3	61	59327

Annexure IX.2 : Projections of Gross and Net Irrigated Area.

Gross Irrigated Area ('000 ha)

	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/OTH	CHD	DEL
1989/90	3913	180	452	6858	4341	13321	571	9039	3758	0	64
1990/91	3956	182	457	6934	4388	13468	577	9138	3795	0	65
1991/92	4000	184	462	7010	4437	13616	583	9239	3833	0	65
1992/93	4044	186	467	7087	4485	13766	590	9341	3872	0	66
1993/94	4088	188	472	7165	4535	13917	596	9443	3910	0	67
1994/95	4133	190	478	7244	4585	14070	603	9547	3949	0	68
1995/96	4179	192	483	7324	4635	14225	609	9652	3989	0	68
1996/97	4224	194	488	7404	4686	14381	616	9758	4029	0	69
1997/98	4271	196	494	7486	4738	14539	623	9866	4069	0	70
1998/99	4318	198	499	7568	4790	14699	630	9974	4110	0	71
1999/00	4365	200	505	7651	4842	14861	637	10084	4151	0	71
2000/01	4413	203	510	7735	4896	15025	644	10195	4192	0	72
2001/02	4462	205	516	7821	4950	15190	651	10307	4234	0	73
2002/03	4511	207	521	7907	5004	15357	658	10420	4279	0	74
2003/04	4561	209	527	7994	5059	15526	665	10535	4326	0	75
2004/05	4611	212	533	8081	5115	15697	672	10651	4373	0	75

Net Irrigated Area ('000 ha)

	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/OTH	CHD	DEL	
1989/90	2481	103	347	3919	3480	10822	384	6680	3712	0	56	[illegible]
1990/91	2506	104	350	3958	3515	10930	388	6747	3752	0	56	[illegible]
1991/92	2531	105	354	3997	3550	11040	392	6814	3794	0	57	32674
1992/93	2556	106	357	4037	3586	11150	396	6883	3835	0	57	[illegible]
1993/94	2582	107	361	4078	3622	11262	400	6951	3878	0	58	[illegible]
1994/95	2608	108	364	4119	3658	11374	404	7021	3920	0	59	[illegible]
1995/96	2634	109	368	4160	3694	11488	408	7091	3963	0	59	[illegible]
1996/97	2660	110	372	4201	3731	11603	412	7162	4007	0	60	[illegible]
1997/98	2687	112	375	4243	3769	11719	416	7234	4051	0	60	[illegible]
1998/99	2713	113	379	4286	3806	11836	420	7306	4096	0	61	[illegible]
1999/00	2741	114	383	4329	3844	11954	424	7379	4141	0	62	[illegible]
2000/01	2768	115	387	4372	3883	12074	429	7453	4186	0	62	[illegible]
2001/02	2796	116	391	4416	3922	12195	433	7527	4232	0	63	[illegible]
2002/03	2824	117	394	4460	3961	12317	437	7603	4277	0	63	[illegible]
2003/04	2852	118	398	4504	4001	12440	442	7679	4319	0	64	[illegible]
2004/05	2880	120	402	4549	4041	12564	446	7755	4363	0	65	[illegible]

Annexure IX.3 : BAU Scenario -- Projections of Sales and Registrations of Tractors

	prod tract	North R sales	HAR sales	HP sales	JK sales	PUN sales	RAJ sales	UP sales	CHD sales	DEL sales
1990-91	124000	79739	15017	334	373	25059	9950	28824	182	0
1991-92	134000	86169	16228	361	403	27080	10752	31148	197	0
1992-93	145000	93243	17560	390	436	29303	11635	33705	213	0
1993-94	155000	99673	18771	417	466	31324	12438	36030	227	0
1994-95	165000	106104	19982	444	496	33345	13240	38354	242	0
1995-96	175000	112534	21193	471	527	35366	14042	40679	257	0
1996-97	185000	118965	22404	498	557	37387	14845	43003	271	0
1997-98	195000	125395	23615	525	587	39408	15647	45328	286	0
1998-99	205000	131826	24826	552	617	41429	16450	47652	301	0
1999-00	215000	138256	26037	579	647	43450	17252	49977	315	0
2000-01	225000	144687	27248	606	677	45471	18055	52301	330	0
2001-02	235000	151117	28459	633	707	47492	18857	54626	345	0
2002-03	245000	157548	29670	659	737	49513	19659	56950	359	0
2003-04	255000	163978	30881	686	767	51534	20462	59275	374	0
2004-05	265000	170409	32092	713	797	53555	21264	61599	389	0

as of March	North R regist	HAR regist	HP regist	JK regist	PUN regist	RAJ regist	UP regist	CHD regist	DEL regist
1990	651615	96225	2670	3050	261160	66440	220580	1490	-
1991	691605	105372	2841	3237	270289	72337	235948	1581	-
1992	735586	115172	3028	3443	280881	78677	252704	1681	-
1993	783958	125706	3234	3669	293051	85513	270994	1791	-
1994	835810	136809	3454	3912	306499	92734	290493	1909	-
1995	890929	148445	3687	4169	321148	100317	311127	2035	-
1996	949117	160583	3933	4442	336924	108240	332827	2168	-
1997	1010185	173191	4191	4727	353759	116483	355528	2307	-
1998	1073959	186241	4461	5026	371588	125024	379168	2452	-
1999	1140274	199706	4740	5336	390350	133848	403691	2603	-
2000	1208973	213561	5030	5657	409988	142935	429042	2760	-
2001	1279913	227781	5329	5989	430450	152270	455172	2922	-
2002	1352956	242345	5636	6331	451684	161839	482032	3088	-
2003	1427973	257232	5952	6682	473644	171626	509578	3259	-
2004	1504845	272422	6275	7042	496285	181619	537768	3434	-
2005	1583459	287896	6606	7409	519567	191804	566564	3614	-

Annexure IX.4 : Projections of Number of Diesel Pumpsets

As of	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/OTH	CHD	DEL	North I.
mar 90	124551	906	647	360723	91305	1281899	45507	791278	445114	-	-	3141930
mar 91	132273	930	664	372302	95879	1338687	47523	826331	464832	-	-	3279422
mar 92	140474	954	681	384253	100683	1397991	49629	862938	485424	-	-	3423027
mar 93	149184	979	699	396587	105727	1459922	51827	901166	506929	-	-	3573020
mar 94	158433	1004	717	409318	111024	1524596	54123	941088	529386	-	-	3729690
mar 95	168256	1031	736	422457	116586	1592136	56521	982778	552837	-	-	3893338
mar 96	178688	1057	755	436018	122427	1662668	59025	1026315	577328	-	-	4064281
mar 97	189766	1085	775	450014	128561	1736324	61639	1071781	602904	-	-	4242849
mar 98	201532	1113	795	464459	135002	1813243	64370	1119261	629612	-	-	4429388
mar 99	214027	1142	816	479369	141765	1893570	67222	1168844	657504	-	-	4624259
mar 00	227297	1172	837	494756	148868	1977455	70200	1220624 ,	686632	-	-	4827840
mar 01	241389	1203	859	510638	156326	2065056	73309	1274697	717049	-	-	5040527
mar 02	256355	1234	881	527029	164158	2156538	76557	1331166	748815	-	-	5262735
mar 03	272249	1266	904	543947	172382	2252073	79949	1390137	781987	-	-	5494895
mar 04	289129	1300	928	561408	181019	2351840	83490	1451720	816629	-	-	5737462
mar 05	307055	1333	952	579429	190088	2456026	87189	1516031	852806	-	-	5990909
max*	473186	36179	167598	1026694	500250	13215859	469163	8157753	4588943	-	-	28635626

* On the basis of groundwater potential.

Annexure IX.5 : BAU Scenario -- Projections of HSD Sales to Agricultural Consumers (kilolitre)

HSD/year trac/ag (k.lit)	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/OTH	CHD	DEL	NR
A.Tractor (for Agri. purposes)												
1990/91	83944	1148	1087	239846	32070	146655	4043	84508	58104	251	1702	506702
1991/92	92246	1229	1160	249866	35054	157681	4347	90861	62472	252	1850	539338
1992/93	101204	1317	1241	261356	38284	169750	4680	97816	67254	254	2010	575416
1993/94	110790	1413	1328	274251	41749	182817	5040	105346	72431	255	2183	614786
1994/95	120928	1515	1422	288395	45419	196765	5425	113383	77957	256	2367	657069
1995/96	131595	1624	1523	303736	49288	211558	5833	121907	83818	258	2561	702142
1996/97	142772	1739	1628	320221	53347	227162	6263	130899	90000	259	2764	749893
1997/98	154438	1860	1740	337805	57589	243545	6715	140339	96491	260	2978	800215
1998/99	166576	1987	1857	356442	62007	260677	7187	150212	103278	261	3200	853009
1999/00	179169	2120	1979	376090	66596	278531	7679	160500	110352	263	3431	908179
2000/01	192201	2258	2106	396710	71347	297080	8191	171188	117701	264	3671	965637
2001/02	205657	2400	2238	418264	76258	316299	8721	182263	125315	265	3918	1025300
2002/03	219523	2548	2374	440718	81320	336165	9268	193711	133186	267	4174	1087090
2003/04	233785	2701	2515	459830	86531	356657	9833	205519	141305	268	4437	1146725
2004/05	248432	2858	2660	468664	91885	377753	10415	217675	149663	269	4708	1197231
B. Tractors (for Transp. purposes)												
1990/91	29931	678	610	86976	33029	98990	2233	28128	68629	200	586	251000
1991/92	32834	724	650	90449	36038	106578	2397	30193	73987	213	637	268124
1992/93	35960	775	694	94441	39289	114496	2577	32452	79468	228	691	286575
1993/94	39299	830	742	98926	42769	123054	2771	34894	85390	244	749	306613
1994/95	42820	888	793	103845	46447	132169	2977	37496	91696	261	811	328035
1995/96	46517	951	847	109177	50314	141812	3196	40250	98366	280	876	350774
1996/97	50381	1016	905	114901	54362	151958	3426	43150	105382	299	945	374767
1997/98	54404	1085	965	120998	58581	162583	3667	46188	112728	320	1016	399953
1998/99	58579	1157	1028	127451	62965	173665	3919	49359	120388	341	1090	426277
1999/00	62900	1232	1094	134242	67505	185181	4180	52656	128345	363	1167	453685
2000/01	67360	1310	1163	141355	72196	197112	4451	56073	136587	387	1247	482129
2001/02	71952	1391	1233	148776	77030	209438	4732	59606	145100	411	1329	511560
2002/03	76673	1474	1306	156491	82001	222174	5021	63250	153903	436	1413	541968
2003/04	81515	1559	1382	164487	87103	235339	5318	67000	163021	462	1500	573347
2004/05	86475	1647	1459	172750	92332	248896	5624	70851	172421	488	1589	605637

Annexure IX.5 contd.

	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/DTH	CHD	DEL	[illegible]

C. Diesel Pumpsets

	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/DTH	CHD	DEL	[illegible]
1990/91	25752	410	228	91925	22408	170538	18059	136184	16295	0	1636	312897
1991/92	27380	422	234	94981	23556	178427	18875	142379	17172	0	1715	326715
1992/93	29110	433	240	98138	24763	186503	19728	148857	17918	0	1798	340985
1993/94	30949	445	246	101400	26032	194945	20620	155628	18697	0	1885	355902
1994/95	32904	457	253	104770	27366	203770	21552	162708	19509	0	1976	371496
1995/96	34984	469	260	108253	28768	211380	22526	168496	20357	0	2055	386169
1996/97	37194	482	267	111851	30242	216404	23544	171617	21242	0	2109	398549
1997/98	39544	495	274	115569	31792	220305	24609	173531	22165	0	2152	410131
1998/99	42043	508	282	119410	33421	224315	25721	175467	23128	0	2197	422176
1999/00	44699	522	289	123379	35133	228440	26884	177424	24133	0	2244	434706
2000/01	47524	536	297	127480	36933	232682	28099	179402	25181	0	2292	447744
2001/02	50527	550	305	131717	38825	237047	29369	181403	26276	0	2343	461314
2002/03	53719	565	313	136095	40815	241551	30696	183426	27428	0	2395	475453
2003/04	57113	580	322	140618	42906	246210	32084	185471	28655	0	2450	490199
2004/05	60722	596	330	145292	45104	251023	33534	187540	29949	0	2508	505575

D. Tractors plus Diesel Pumpsets

	HAR	HP	JK	PUN	RAJ	UP	UP/HILL	UP/WEST	UP/DTH	CHD	DEL	[illegible]
1990/91	139627	2237	1925	418747	87506	416183	24336	248820	143028	451	3924	1070600
1991/92	152460	2374	2044	435296	94649	442685	25620	263434	153631	466	4201	1134173
1992/93	166274	2524	2175	453936	102337	470749	26985	279125	164640	482	4499	1202976
1993/94	181038	2687	2317	474577	110549	500817	28431	295868	176518	499	4817	1277301
1994/95	196653	2860	2469	497011	119232	532704	29954	313588	189162	518	5154	1356600
1995/96	213096	3044	2630	521165	128370	564750	31555	330654	202541	537	5492	1439085
1996/97	230347	3237	2800	546973	137951	595524	33233	345666	216624	558	5818	1523208
1997/98	248387	3440	2979	574372	147962	626433	34990	360059	231384	580	6146	1610299
1998/99	267199	3653	3167	603303	158393	658658	36827	375037	246794	602	6487	1701462
1999/00	286769	3874	3362	633711	169234	692152	38743	390579	262830	626	6842	1796569
2000/01	307085	4104	3565	665545	180476	726874	40741	406664	279469	651	7210	1895509
2001/02	328136	4341	3776	698757	192112	762785	42821	423272	296691	676	7590	1998174
2002/03	349915	4587	3994	733304	204136	799890	44986	440386	314518	703	7985	2104514
2003/04	372414	4841	4218	764935	216540	838206	47236	457990	332981	730	8398	2210282
2004/05	395629	5101	4450	786707	229322	877671	49573	476066	352033	758	[illegible]	2308462

Annexure IX.6 : LTP Scenario -- Projections of Sales and Registrations of Tractors

	prod tract	North R sales	HAR sales	HP sales	JK sales	PUN sales	RAJ sales	UP sales	CHD sales	DEL sales
1990-91	124000	79739	15017	334	373	25059	9950	28824	182	0
1991-92	134000	86169	16228	361	403	27080	10752	31148	197	0
1992-93	145000	93243	17560	390	436	29303	11635	33705	213	0
1993-94	155000	99673	18771	417	466	31324	12438	36030	227	0
1994-95	165000	106104	19982	444	496	33345	13240	38354	242	0
1995-96	170000	109319	20587	458	511	34356	13641	39516	249	0
1996-97	175000	112534	21193	471	527	35366	14042	40679	257	0
1997-98	180000	115750	21798	484	542	36377	14444	41841	264	0
1998-99	185000	118965	22404	498	557	37387	14845	43003	271	0
1999-00	190000	122180	23009	511	572	38398	15246	44165	279	0
2000-01	192500	123788	23312	518	579	38903	15447	44746	282	0
2001-02	195000	125395	23615	525	587	39408	15647	45328	286	0
2002-03	197500	127003	23918	532	594	39913	15848	45909	290	0
2003-04	200000	128611	24220	538	602	40419	16048	46490	293	0
2004-05	202500	130218	24523	545	609	40924	16249	47071	297	0

as of March	North R regist	HAR regist	HP regist	JK regist	PUN regist	RAJ regist	UP regist	CHD regist	DEL regist
1990	651615	96225	2670	3050	261160	66440	220580	1490	-
1991	691605	105372	2841	3237	270289	72337	235948	1581	-
1992	735586	115172	3028	3443	280881	78677	252704	1681	-
1993	783958	125706	3234	3669	293051	85513	270994	1791	-
1994	835810	136809	3454	3912	306499	92734	290493	1909	-
1995	890929	148445	3687	4169	321148	100317	311127	2035	-
1996	945901	159977	3920	4427	335914	107839	331665	2160	-
1997	1000736	171411	4152	4683	350789	115303	352112	2285	-
1998	1055440	182753	4383	4939	365768	122714	372474	2410	-
1999	1110023	194009	4614	5194	380843	130073	392756	2534	-
2000	1164492	205184	4844	5449	396009	137384	412963	2658	-
2001	1217246	215980	5066	5696	410755	144451	432519	2779	-
2002	1268389	226420	5282	5935	425107	151286	451463	2895	-
2003	1318020	236526	5491	6167	439089	157906	469832	3008	-
2004	1366231	246318	5695	6393	452723	164322	487663	3118	-
2005	1413110	255815	5893	6612	466031	170547	504986	3225	-

Annexure X.1 : BAU Scenario -- Projections of Power Deficits

	1990/91 egy req GWh	1990/91 egy aval GWh	1990/91 egy def GWh	1990/91 egy def %	1991/92 egy req GWh	1991/92 egy aval GWh	1991/92 egy def GWh	1991/92 egy def %
HAR	9628	7703	1924	20.0	10280	8016	2264	22.0
HP	1665	1654	11	0.6	1865	1853	12	0.7
JK	3375	2884	492	14.6	3733	3125	609	16.3
PUN	16954	14702	2252	13.3	17750	15028	2722	15.3
RAJ	13158	9086	4072	30.9	14587	9288	5299	36.3
UP	31754	27880	3874	12.2	33756	30181	3575	10.6
CHD	676	654	22	3.2	760	728	32	4.2
DEL	9253	8263	991	10.7	10022	8666	1355	13.5
NR	86464	72827	13637	15.8	92752	76885	15867	17.1

	1992/93 egy req GWh	1992/93 egy aval GWh	1992/93 egy def GWh	1992/93 egy def %	1993/94 egy req GWh	1993/94 egy aval GWh	1993/94 egy def GWh	1993/94 egy def %
HAR	10976	8341	2635	24.0	11719	8679	3040	25.9
HP	2089	2075	14	0.7	2340	2324	17	0.7
JK	4129	3386	743	18.0	4567	3668	898	19.7
PUN	18584	15362	3221	17.3	19456	15704	3753	19.3
RAJ	16170	9494	6676	41.3	17926	9705	8220	45.9
UP	35884	32672	3212	8.9	38146	35369	2777	7.3
CHD	853	809	44	5.1	958	900	58	6.1
DEL	10854	9089	1764	16.3	11755	9533	2222	18.9
NR	99539	81229	18309	18.4	106868	85883	20985	19.6

	1994/95 egy req GWh	1994/95 egy aval GWh	1994/95 egy def GWh	1994/95 egy def %
HAR	12513	9031	3482	27.8
HP	2622	2603	19	0.7
JK	5051	3975	1076	21.3
PUN	20370	16052	4318	21.2
RAJ	19872	9921	9951	50.1
UP	40551	38288	2263	5.6
CHD	1076	1001	75	7.0
DEL	12731	9999	2732	21.5
NR	114786	90870	23916	20.8

	North R. egy req GWh	North R. egy aval GWh	North R. egy def GWh	North R. egy def %
1995/96	123344	96673	26671	21.6
1996/97	132599	102921	29678	22.4
1997/98	142612	109654	32958	23.1
1998/99	153450	116911	36539	23.8
1999/00	165187	124740	40447	24.5
2000/01	177903	133189	44714	25.1
2001/02	191687	142312	49376	25.8
2002/03	206636	152167	54469	26.4
2003/04	222856	162821	60036	26.9
2004/05	240464	174342	66122	27.5